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DEPARTMENT OF COMMERCE

BUREAU OF FOREIGN AND DOMESTIC COMMERCE

E. E. PRATT, Chief

MISCELLANEOUS SERIES—No. 41

MARKETS FOR
AMERICAN HARDWARE

IN

CHILE AND BOLIVIA



Prepared under the supervision of

VERNE L. HAVENS

Commercial Attaché at Santiago, Chile

WASHINGTON
GOVERNMENT PRINTING OFFICE

1916



FIG. 1.—A SANTIAGO STORE IN WHICH HARDWARE IS SOLD.

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LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF FOREIGN AND DOMESTIC COMMERCE,
Washington, September 15, 1916.

SIR: There is submitted herewith a report on the markets for American hardware in Chile and Bolivia, prepared under the supervision of Commercial Attaché Verne L. Havens. This is the first in a series of monographs that will embody the results of the comprehensive investigation into hardware markets throughout the world, conducted by the ten United States commercial attachés. It has been the intention of the Bureau to make this survey as thorough and practical as possible—broad in scope, uniform in method of treatment, and concretely useful in its presentation of desired details. It should be borne in mind that, though the work has been carried out under the direct supervision of the attachés, they have not themselves gathered the technical data for the reports. This has been done by men specially engaged for the purpose and selected with a view to their experience and qualifications along such lines. Because of the adoption of this plan, it is felt that the value of the reports will be materially enhanced. In the present instance the actual writing of the report was done by the attaché, and he is to be credited with the preparation of all the material of a general nature.

This book discusses in very considerable detail the Chilean markets for practically all the important articles included under the term "hardware." Descriptions and usual prices are given, together with the chief countries of origin and (in the case of European goods) the names of certain of the principal factories that furnish the supply. Reasons are adduced for the dominant position occupied by one nation or another, and practical suggestions are offered as to the methods that American makers should pursue in order to conform to the various local requirements and thus increase their trade.

Mr. Havens has presented also a general description of the territory covered; has given an account of transportation facilities, ocean freight service, banking, and finance; has indicated the prevailing industrial conditions through statistics of mining, agriculture, and manufactures; and has afforded an insight into the existing market by tables showing the importations in the past. The subjects of proper packing for export, local systems of conducting trade and

financing sales, and the facilities for securing reliable credit information have all engaged the earnest attention of the attaché. Particularly illuminating and valuable is his discussion of the most desirable methods of entering the Chilean and Bolivian markets. Having a thorough knowledge of the conditions governing the trade of the South American west coast, he has been able to show very definitely the methods that are impracticable or ill-advised and to contrast them with those that he considers most feasible and most calculated to produce the desired results.

It is believed that the present book will give to American hardware manufacturers a means of estimating the market for their products in Chile and Bolivia, as well as many ideas concerning the way in which a campaign to enter those fields can be undertaken with the maximum effectiveness.

Mr. Havens desires to express his appreciation of the assistance rendered in the preparation of this report by Mr. E. Bottinelli, of Santiago, Chile; Mr. L. J. Keena, United States consul general at Valparaiso; the officers of the Chilean National Government; and numerous merchants and bankers in the two countries, from whom information was obtained.

Respectfully,

E. E. PRATT,
Chief of Bureau.

To Hon. WILLIAM C. REDFIELD,
Secretary of Commerce.

MARKETS FOR AMERICAN HARDWARE IN CHILE AND BOLIVIA.

CHILE.

I. GENERAL DESCRIPTION OF COUNTRY.

In a consideration of Chile as a market for products of any kind, the facts regarding its location and peculiar form need, perhaps, to be mentioned briefly. The position occupied by this country is in the southwestern part of South America. Viewing it from the standpoint of physical features, we may note that it is bounded on the north by a great desert that is almost entirely lacking in animal or vegetable life, although rich in minerals; on the east by the lofty Andes, whose passes are not only snow-bound throughout the winter but are almost inaccessible in the warmer seasons; and on the south and west by the Pacific Ocean. The currents and winds of the Pacific are favorable to eastbound traffic in the south and westbound traffic in the north. Chile's closest neighbor on the west is New Zealand, about 5,000 miles away.

The prevailing temperature in the northern section of Chile may be described as "warm to mild." The heat that one might expect at south latitude $17^{\circ} 47'$ (at the Sama River, between Chile and Peru) is tempered by the Humboldt Current, originating in the cool South Pacific seas and running northward along the Chilean coast with an average velocity of 1 mile per hour.

The temperature at latitude 56° (Cape Horn) seldom goes below 14° F., but the winds are strong, and the winter is about nine months long. The enormous territory of Magallanes, the most southern political division of Chile, which is composed largely of islands, has but one town of any importance—Punta Arenas. This city has a population of 17,400 and enjoys the distinction of being the farthest south of any incorporated town in the world.

COMPARISONS ILLUSTRATING POSITION OF CHILE.

A corresponding situation to that of Chile may be imagined in the Northern Hemisphere if a sketch map be made (indicating latitude but disregarding longitude) showing the Equator and the west coast of North and South America. If this sketch map were to be folded on the Equator, the northern part of Chile would about coincide with Acapulco, in southwestern Mexico, and the southern part of Chile would about coincide with the southern part of Alaska, with the corresponding islands. Actually, however, Chile is almost due south of New York City.

The total length of the country is about 2,900 miles, the average width is about 100 miles, and the approximate superficial area is

290,000 square miles. Chile is, we may say, 10 per cent smaller in area and population than the combined States of California, Oregon, and Washington, provided that, solely for the purpose of comparison, Portland and Seattle (with all their business and facilities) be entirely eliminated from consideration and the assumption be made that the California desert, devoid of any works for irrigation or water supply, extends as far north as San Jose. The total population of Chile is about three and one-half millions; but of this total there are, perhaps, about one million who do not buy enough imported articles in a year to be of interest to manufacturers.

ECONOMIC EFFECTS OF NATURAL BARRIERS.

Chile has been cut off from communication with the rest of the world by great natural barriers to such an extent that it has only been possible for the virile people of the country to engage in the production of material of comparatively great value, which could stand the heavy transportation charges—such as copper, nitrates, borax, and iodine—or to produce locally for their own needs such articles as might command a very high price if imported from abroad. This basic economic fact is perhaps more clearly shown by the details set forth in the table on page 28 that deals with local industries.

The desert or northern section, extending from 18° to 27° south latitude, has not been irrigated for several reasons. One is that there is no reasonably obtainable water supply. Another is that the soil is generally too hard to plow, while still another is that this desert contains more than 500,000,000 tons of nitrates close to the surface—sufficient to supply the world, at the present rate of consumption, for more than 200 years. These form an available source of wealth that is not to be lightly laid aside. It may be added that the export tax on these nitrates produces more than 50 per cent of the revenues of the Chilean National Government.

CHILEAN PORTS AND EXTENT OF THEIR TRADE.

Although there are 61 points along the coast of Chile where merchandise is landed from time to time, there are perhaps not more than 25 or 30 that embark or disembark more than 10,000 tons of freight per year. There are from 12 to 18 ports where embarkation and disembarkation amounts to more than 50,000 tons each year, and perhaps 10 that do a business of more than 100,000 tons per year, in and out. It is generally, though not always, true that the ports doing the greatest export business also do the greatest import business, but in the event that a certain port exports a considerable amount of material it is at least probable that firms and individuals will be found there who are interested in imports in some near-by port. The fact that the exportation occurs from a given locality may be taken as indicating that the corresponding industries are near by and direct sales may be accomplished. On the other hand, the fact that large imports are brought in at a certain city would indicate that commission houses or general importers are located there who are especially equipped for handling distribution.

NORTHERN, OR DESERT, SECTION—PORTS HANDLING MINERALS.

The most northern port of Chile, in the desert section, is Arica, which at present has only a poorly protected roadstead, though this may in course of time be considerably improved. It is the principal port for the entrance of merchandise destined for La Paz, Bolivia, and even near-by points to the south of that city. The rail haul from Arica to La Paz is only 463 kilometers (288 miles), while from Mejillones and Antofagasta to the Bolivian capital it is about 1,160 kilometers (720 miles), and from Mollendo, Peru, to La Paz 814 kilometers (506 miles), with a transfer to steamers for crossing Lake Titicaca. Unfortunately a considerable portion of the Arica route is operated by cog-wheel locomotives, and in order to go south from La Paz to enter the territory of the Antofagasta Railway a change of gauge and transfer to other cars is necessary. But, notwithstanding this fact, the Arica-La Paz line is the only section out of about 5,000 or more kilometers operated by the Government of Chile that regularly returns net earnings. At the present time Arica may be said to owe its existence to the railway mentioned, but it is not unlikely that an important tin smelter will be located there within a reasonable length of time, and this project, if carried out, will tend to make the city more important. Since it is the first port of call in Chilean waters for southbound boats from Peru, Panama, and the United States, it is frequently necessary to make a stop there to comply with the quarantine regulations.

The next important port toward the south is Iquique, from which are shipped about 25 per cent of the nitrate products. Caleta Buena, Tocopilla, Antofagasta, Mejillones, and Taltal ship from 10 to 15 per cent each of the nitrate and iodine, Coloso, Pisagua, and Junin handling the remainder of this material. Iquique, Caleta Buena, Mejillones, Junin, and Pisagua are all within two or three hours' steaming from each other. Antofagasta ships practically all the borax originating in the country—about 50,000 tons per year.

COPPER AND IRON MINES.

South of the nitrate region there is a district about 600 miles in length, or from 33° to 34° south latitude, where all the known minerals are found. There are now in operation in this locality two American copper properties (not to mention others) that are capable of producing more than 100,000 tons of electrolytic copper per year, at an average cost of less than 7 cents per pound. Here also are located the iron mines of a well-known American steel company, which is actually shipping ore to the United States. Its properties and installations are capable of producing at least 1,500,000 tons of 68 per cent iron ore per year.

The principal ports handling the copper output of Chile have been Coquimbo (9,000 tons), Valparaiso (5,000 tons), Lota (3,000 tons), Carrizal (4,000 tons), Caldera and Gatica (2,000 tons each)—a total of about 23,000 tons per annum. Antofagasta, however, has now begun shipping heavily, and may very easily export twice as much as all the rest of the country. The principal iron port is Cruz Grande, a few miles above Coquimbo.

AGRICULTURAL LANDS IN CENTRAL SECTION.

Farther to the south lies the third district, which also overlaps the second. Coquimbo, in latitude 30° south, may be said to mark the northern boundry of agricultural lands. There is some rainfall, though the quantity is insufficient, from this point south for a distance of 400 miles (or, we may say, to Concepcion, in 37° south latitude). Irrigation is practiced on a small scale, in the sense that only the land comparatively easy to put under water has been subjected to this method, leaving the more difficult work yet to be accomplished. The principal ports of the agricultural section, which contains more than 50 per cent of the population of the country, are Coquimbo, Valparaiso, and Talcahuano, the latter being the port of Concepcion. Valparaiso is by far the most important port, not only of this section, but of the entire country.

THE NEW PORT OF SAN ANTONIO.

At the present time a new port is being constructed about four hours' steaming to the south of Valparaiso. This is known as San Antonio. It is only 65 miles from Santiago—the capital of the country and a city of 400,000 people—while Valparaiso is 110 miles from Santiago. The principal port will therefore lose traffic in the future in the event that reasonable port and landing charges are made at San Antonio. The present charge for unloading at that point is 45 centavos, Chilean gold, per 100 kilos, or 7.5 cents in United States currency per 100 pounds. This rate prevails provided the weight of the package is at least 220 pounds; if the weight is less, the same charge is made for handling the package as if it weighed 220 pounds. This rate, it should be noted, is to be used only for figuring charges on hardware. Rates on other material may be obtained from the Bureau of Foreign and Domestic Commerce, to which has been forwarded a copy of a pamphlet, in Spanish, entitled, "Puerto de San Antonio. Tarifas i reglamento para embarque i desembarque de mercaderías. Enero, 1914." This gives in detail the charges for handling all classes of merchandise that the port is now prepared to handle. [See Appendix, p. 176. In mentioning this publication, refer to file No. 948.]

Regarding the present condition of San Antonio, reference may be made to the following statement by the engineer in charge of the work, under date of July 31, 1915:

A large breakwater is being constructed at the present time, and later there will be installed such docking facilities that boats of any size may tie up to them directly. These docks will not be completed for another 18 months or two years, but meanwhile the construction company has been authorized to handle the business provisionally by means of launches. In addition to the launches there are in use at the present time a small dock, served by steam cranes and two cableways (handling heavy material from the boat to the shore). A high dock has lately been completed that communicates with elevated storage bins for handling coal (for transfer to the railways). The launches that handle goods from the ships have a small dock to which they can tie up.

Although the future of San Antonio looks bright (considering that it is a relatively small port), Valparaiso will always be important, because it is not only in itself the center of an important region, but also the point of origin of the Transandine Railway, over which

there is considerable passenger traffic in the summer. Freight can not be handled to advantage over the 7 per cent rack grades of this railway, and during the winter it is snow-bound near the summit.

AGRICULTURE AND FRUIT RAISING FARTHER SOUTH.

Overlapping the semiarid agricultural region just described and extending south to Puerto Montt (at the southern end of the mainland railway at latitude 42° south), agriculture and fruit raising are carried on in the simpler forms, irrigation being unnecessary. Excellent crops of apples, peaches, nuts, wheat, potatoes, and similar fruits and vegetables are produced. Nor should the wealth invested in sheep and cattle be overlooked. This industry is important now because of the grass-fed stock produced, and the region under consideration will some time become the home of the fattened animals for the northern market.

This section is well forested. The trees are cut rather to clear the land than for the purpose of making lumber, since the facilities for disposing of foodstuffs have long been greater than those for competing with the foreign lumber introduced into the central and northern part of the country.

This particular portion of Chile has been settled largely by German colonists, who have been of great value to the country because of the development work that they have done.

CHIEF PORTS OF REGION—NEW ROUTE FOR RAILWAY.

The principal ports are Coronel and Valdivia. There are two smaller ones, known as Puerto Montt and Ancud, the latter serving only the island of Chiloe. In the northern part of this section, near Talcahuano, are Lebu and Lota. These two ports, with Coronel and Talcahuano, will undoubtedly become more important in the future, because of the great supply of coal near by, close to the sea. Much of the coal is, in point of fact, under the sea, but it outcrops far enough inland to facilitate entries. It is in this section—that is, from Valparaiso or Santiago south to Puerto Montt—that most of the possibilities of water-power development lie, because the rainfall is heaviest there and the storage sites most numerous.

Near Lebu there exists the most feasible route for a new, low-grade, transcontinental railway connecting Chile with the plains of Argentina. By "most feasible" is not meant, necessarily, the cheapest line, nor the lowest grade or summit elevation, but rather that line which would best serve the interests of Chile, be most in accord with public sentiment, connect the largest population on a reasonable route, and run through traffic-producing territory.

SOUTHERN CHILE—MAP OF REPUBLIC.

Part of the way from Puerto Montt to Cape Horn the forest lands continue, but there are no inhabitants other than the few remaining members of the almost extinct aboriginal population who may occasionally be seen in their canoes or along the banks of the sea channels, which have cut the land into many islands. The southern part of this section, and of the country as a whole, is purely a grazing terri-

tory, the principal products being wool, hides, and meat. Sawmill and lumbering tools are sold in the territory served by Talcahuano and Valdivia, but there are only about 5,000 inhabitants in the timbered section of Chile south of Ancud. The only town in the southern grazing section is, as previously noted, Punta Arenas.

Illustrating this brief, general description, a small map of the country is shown on the opposite page, indicating the principal divisions noted, the location of the main ports, the chief industries, and the general division of the population. This diagram has been prepared to show in a graphic manner where articles of hardware would be likely to have the greatest sale—as, for example, sawmill utensils and axes in the south, general supplies and builders' hardware in the central section, and picks, shovels, and pipe tools in the north. It is felt also that it will assist in the formation of just opinions regarding the sources of wealth throughout the country. It is obvious that credits would be affected in a given territory if the market for a product forming the principal source of wealth in that region should be in any way impaired.

TRANSPORTATION FACILITIES.

The form of the country is so peculiar, and the industries so diversified, that after one studies the small map the question of intercommunication between the various parts, and from the country as a whole to other parts of the world, is likely to present itself as one of importance.

There are set forth in the statistics of Chile for 1914 the following facts regarding railways: Government owned and operated, 2,352 miles; Government owned or guaranteed, 781 miles; privately owned and operated, 1,933 miles; total approximate cost, \$249,000,000 United States gold.

The railway mileage of the country is exceeded in South America only by that of Argentina and Brazil, and this fact is indicative of a spirit of progress in a country where the natural obstacles to railway construction are such that the cost is more than \$100,000 per mile. There are numerous places in Chile where the topography is such that it was necessary to install cog-wheel traction—notably on the line to Bolivia, the Transandine to Argentina, and for 38 miles on the southern section of the Longitudinal Railway, which connects the Santiago-Valparaiso line with Iquique in the north.

The railways owned and operated by the Government are autonomous; that is, in the event that there is a deficit as the result of operation, the railways must make it up from their earnings the following year, and if there is a favorable balance the money may be spent for improvements.

DIFFERENCE IN GAUGES—VARYING AMOUNT OF TRAFFIC.

The ancient fallacy that mountain railways must necessarily be of narrower gauge than the valley lines (arising from the popular misconception that curves sufficiently sharp to round the mountain points could not be introduced on a standard gauge) unfortunately gained a strong foothold in Chile, and while the railway from Valparaiso to Santiago, and from Santiago to the south, is 5 feet 6 inches

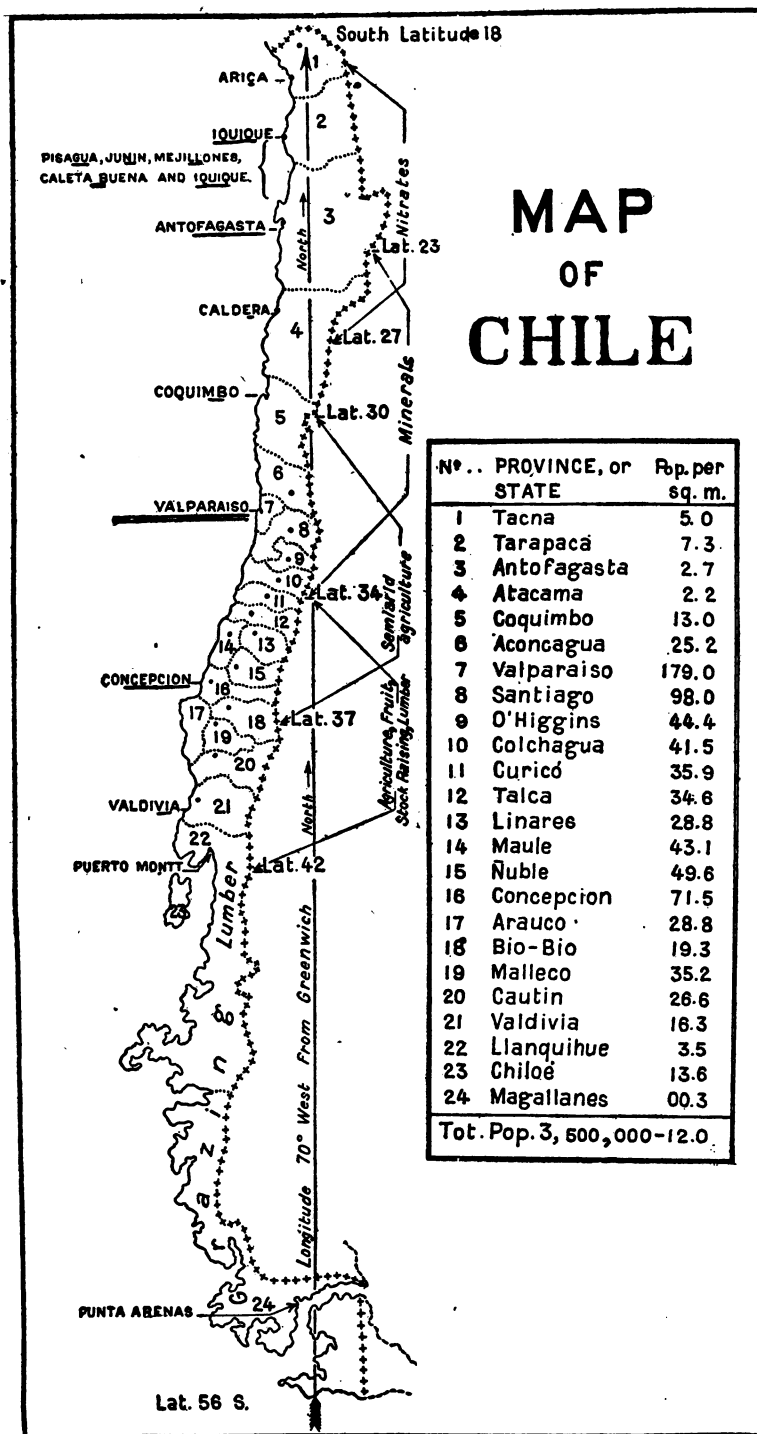


FIG. 2.—MAP OF CHILE.

wide, the northern main line and branches form a combination of many different gauges. The meter (3.28 feet) width is the most common, but the gauges of the branches and a part of the main line are such that, if any appreciable traffic should develop, the cost of transfer would be very great. Traffic on the section from Coquimbo to Antofagasta is so slight that a train a week would be a novelty. At present there are about two per month, and of course these railways are continually facing a deficit. They have the backing of the National Government, however, and the traffic east and north of Valparaiso, through Santiago, is very great. Between these two cities there is a through annual movement of 364,000 tons of freight and 270,000 passengers, and business is growing constantly. To the south of Santiago are the coal mines, the timber regions, and the new agricultural districts, which provide heavy traffic.

THE RAILWAYS AS PURCHASERS.

These fundamental facts regarding the State Railways are important, because the railways form, perhaps, the largest single purchaser of hardware and general supplies in Chile, as may be seen by consulting the list of articles required by them during one year.

When one makes a bid for their supplies, a cash or certified-check deposit is generally required as a guaranty. The railways do not pay interest on overdue obligations, but they try to keep within their means. However, if the money has not been taken in, it obviously can not be given out, and one may say, broadly, that the bills will be paid, probably not before two months, but surely in less than eight months. An assumption of six months would undoubtedly be on the safe side in the average of several cases, for the purpose of calculating interest. Such a possibility as nonpayment, however, is not worthy of consideration. The importance of bearing this fact in mind seems to be so great that it may be repeated without supererogation, since a manufacturer unfamiliar with conditions might ask his agent why he did not collect for one order before accepting another.

FREIGHT RATES ON GOVERNMENT RAILWAYS.

The freight rates on the Government or State Railways, as they are called, are almost universally based on a formula having the form

$$A + B + dK = \text{rate},$$

where A is the average overhead charge per car, B a charge for spotting, and d a constant by which one multiplies the cost of hauling a car over a given division or combination of divisions. The rates are based on gold values, and, when prevailing exchange rates indicate the necessity, the rate is increased, to be collectible in paper. This surcharge varies with exchange, and where freight rates are given in the tariff they are understood to mean pesos having a value of 10 pence, or 20 cents, each. The pound in Chile is assumed to be worth \$4.80 for purposes of calculation. There was forwarded with this report a copy of the rates on the State Railways of Chile, complete and correct up to September 1, 1915. (See Appendix, p. 176.)

It will surprise no one if the rates are increased from time to time, since the fixed charges of the railways are enormous and the income must approach, if it does not really equal, the expenditure. The deficit last year was about \$2,000,000 United States gold.

The private railways that have been constructed merely as common carriers are very few. Practically every line resulting from private enterprise has been built primarily to serve industrial purposes, and this statement is notably true regarding the lines in the nitrate fields and coal and lumber regions.

LENGTH OF LINES, GAUGES, AND REPRESENTATIVES.

Because of the fact that railways are large purchasers, and in many cases direct importers, of hardware, there is given below a list of the railways of Chile, with their gauges and the address of the officer or office with whom correspondence should be carried on.

The length of the State Railways owned and directly operated by the Chilean Government is, as previously stated, 2,352 miles, and the gauges are 1 meter (3.28 feet), 5 feet 6 inches, and 2 feet. The General Director is Señor Alejandro Guzman, Departamento de Ferrocarriles, Dirección de Obras Públicas, Santiago. The Jefe de Materiales (Chief of Materials) is Señor Santiago Perez Peña, Santiago.

The 781 miles of railway that are Government owned or guaranteed have the same gauges as those just considered.

It may be noted that the total length of the Government railway from Arica to La Paz is 288 miles. There are 129 miles of this in Chile and 159 miles in Bolivia. The portion owned by Chile is included in the statement above, the gauge being 1 meter (3.28 feet).

Facts with respect to the principal privately owned railways are shown in the following table, the roads being arranged in the order of their length:

Private railways.	Gauge.	Representative.
Antofagasta to Bolivia.....	2 feet 6 inches.....	W. H. Robinson, Antofagasta.
Salitreros de Tarapaca.....	4 feet 8½ inches.....	J. M. Nicholls, Iquique.
Caleta Coloso to Aguas Blancas.....	2 feet 6 inches.....	W. H. Robinson, Antofagasta.
Carrizal.....	4 feet 2 inches.....	Juan King, Carrizal Bajo.
Caldera to Algarrobo.....	2 feet 6 inches.....	F. Soza Bruna, Caldera.
Tocopilla to Toco.....	3 feet 6 inches.....	Graham, Rowe & Co., Valparaiso.
Taltal.....	do.....	Bertram Norton, Taltal.
Punta Arenas to Mina Loreto.....	2 feet 6 inches.....	Enrique Nielsen, Punta Arenas.
Junin.....	do.....	W. J. O'Neill, Caleta Junin.
Rancagua to Teniente.....	do.....	S. S. Sørensen, Rancagua.
Transandine via Juncal.....	1 meter.....	J. H. White, Los Andes.
Arica to Tacna.....	4 feet 8½ inches.....	R. D. T. Roe, Tacna.
General Cruz to Pemuco.....	1 meter.....	Arturo Barrios, General Cruz.
Caleta Buena to Agua Santa.....	4 feet 8½ inches.....	Santiago Humberstone, Iquique.
Transandine via Antuco.....	1 meter.....	Jorje Annat, Galería Beeche 41, Santiago.
Llano de Maipo.....	do.....	Maximo Dorliac, Estación Providencia, Santiago.
Electric, Santiago to San Bernardo.....	4 feet 8½ inches.....	Horacio Valdes, Galvez 67, Santiago.

OCEAN FREIGHT SERVICE.

The principal steamship lines connecting the United States with Chile (and through Chile with Bolivia), with their respective agents, are as follows:

The Panama Railroad Steamship Line, with offices at 24 State Street, New York, has American steamers sailing every Thursday

from Pier 67, North River, West Twenty-seventh Street, New York, carrying freight, passengers, and mail. Parcel receipts are given for packages not exceeding 2 cubic feet in volume nor \$5 in value, at the rate of \$2.50 per cubic foot or fraction thereof. The minimum bill of lading is \$5 except for Lebu, Los Vilos, Puerto Montt, Ancud, and Punta Arenas, for which ports it is \$10. These boats go only to Panama.

The New York and South American Line is represented by J. W. Ryan, 11 Broadway, New York. Its steamers, under the American flag, sail regularly, with freight only, from Pier 36, Atlantic Dock, Brooklyn, via the Panama Canal. They will carry consignees' letters, they issue no parcel receipts, and the minimum bill of lading is \$4.

The fleet of the United Fruit Co., with offices at 17 Battery Place, New York, and also in New Orleans, is composed of American steamers sailing from Piers 13 and 16, East River, Burling Slip, New York, every Wednesday and Saturday for Panama. They do not pass the canal, but certain boats are in direct connection with the steamers of the *Compañía Sud-Americana de Vapores*, which take the cargo at Colon and proceed southward. Freight, passengers, and mails are carried under practically the same regulations as those of the Panama Railroad Steamship Co.

The *Compañía Sud-Americana de Vapores*, a Chilean line, with its offices at Valparaiso, connects with the United Fruit Line at Colon and passes through the canal. It has biweekly service carrying passengers, mail, and freight. At Colon as well as in Santiago, the same agent acts for the United Fruit Line and the *Compañía Sud-Americana*. There is also biweekly service between Valparaiso and Guayaquil, with numerous stops along the coast, and occasional service to the southern part of Chile.

The Peruvian Line, *Compañía de Navegación y Diques Secos Peruanos*, has lately entered the service, and its steamers now run from certain Chilean ports to Panama.

The Hamburg-American Line steamers of the Atlas service sail in normal times from Pier 65, North River, West Twenty-fifth Street, New York, for Panama. Freight, passengers, and mail are carried. The company keeps five copies of the bills of lading, and the charges are similar to those on the Panama Railroad Steamship Line. The New York office is at 45 Broadway.

In normal times the Kosmos Line operates along the west coast of North and South America, starting from San Francisco. This, like the Hamburg-American, is a German line.

The Merchants Line, of New York, and the Pacific Steamship Co. (Ltd.), under the British flag, are represented by W. R. Grace & Co., Hanover Square, New York. The sailings are about every two weeks, and the boats, via the Straits or Panama, start from Pier 38, Atlantic Dock, Brooklyn. No parcel receipts are issued, and the minimum bill of lading is \$4. Only freight and consignees' letters are carried. The company keeps two copies of the bills of lading.

The West Coast Line, represented by Wessel, Duval & Co., of 25 Broad Street, New York, consists of British steamers sailing about once a month, via Panama or the Straits, with freight only. They will carry consignees' letters, they issue no parcel receipts, and the

minimum bill of lading is \$4. The company keeps four copies of the bills of lading.

The British steamers of the Royal Mail Line sail in normal times for Panama on alternate Saturdays. They are represented by Sanderson & Son, 26 Broadway, New York. They sail from Pier 42, North River, Norton Street, New York, carrying freight and passengers, and the regulations are practically the same as those of the Panama Steamship Line.

The Pacific Steam Navigation Co., in normal times, has a biweekly service between Liverpool and Chilean ports via the Panama Canal, a weekly service from Panama to Callao, and occasional sailings to other ports on the west coast in combination with the *Compañía Sud-Americana de Vapores*.

BELLIGERENT VESSELS—SAILING SHIPS AND "TRAMPS."

It is worth noting that of the 11 lines that operate over a part or all of the route, 4 are British, 2 German, 3 North American, 1 Peruvian, and 1 Chilean. The Peruvian Line is now undertaking to send certain of its ships through the Panama Canal directly to Baltimore, transshipping merchandise from that port to Europe.

The great difficulties with regard to shipping that have been experienced lately are due in part to the fact that 6 of the 11 lines taking part in the trade are the property of belligerent nations, and are practically out of service at the present time.

In addition to the lines above noted there are also numerous vessels coming out from Europe that could handle shipments across the North Atlantic and then south and west, but this route is by no means recommended as a desirable one from the point of view of developing trade. There are also a great number of tramp steamers and sailing vessels that make Chilean ports for the purpose of carrying away the nitrates. Boats coming from Australia with coal, for example, follow the favorable eastbound currents and discharge their cargo in Chile, reloading with nitrates for Europe and merchandise for Oceania via Suez, or at occasional intervals picking up a load for the Cape.

FACILITIES INADEQUATE—SOME BASIC CONSIDERATIONS.

With all these maritime transportation facilities, it would seem that the west coast of South America should be well served, but such is certainly not the case in times of world disturbance; nor can the facilities be considered wholly satisfactory even in normal times, when ships are much easier to charter.

During the many years that commerce has been developing between the northern and southern continents a through loading from the nitrate fields of Chile to New York was a matter of 40 to 60 days, around the Horn. Now that the canal is open, the trip is made in about three weeks at best, or a month from Valparaiso. It takes that length of time in spite of the fact that the Humboldt current flows northward, and is of very considerable assistance to boats bound for the canal.

The fundamental question involved in maintaining a satisfactory freight service between Chile and the United States is revealed in the following table of tonnage passing from one country to the other during the comparatively normal year 1913:

Classes of shipments.	Approximate tonnage.	Classes of shipments.	Approximate tonnage.
FROM CHILE TO THE UNITED STATES.		FROM THE UNITED STATES TO CHILE.	
Antimony.....	170	Cloth.....	5,500
Copper and regulus.....	20,270	Coal.....	112,500
Iodine.....	175	Fish.....	1,200
Lead.....	2,112	General merchandise.....	63,300
Nitrates.....	573,773	Oils and fats.....	350,000
Wool.....	25		
Miscellaneous.....	3,475	Total.....	532,500
Total.....	600,000		

These normal figures indicate, in a general way, that for all practical purposes, the tonnage capacity of the boats is approximately the same, and that there is room aboard, in normal times, for an increase of about 10 per cent in the southbound tonnage, but no room for increase in the northbound tonnage—these conclusions applying simply to traffic between the United States and Chile.

EFFORTS LOOKING TOWARD RAPID STEAMSHIP SERVICE.

It would seem to be very much to the interest of all American manufacturers to assist, so far as it may be individually or collectively possible, in the establishment of rapid steamship service between the United States and the west coast of South America, and every effort should be made to place in the hands of a high-speed line as much high-priced freight as possible, in order that the running expenses of the enterprise might be maintained and a regular, dependable service established. It would appear that a single undertaking of this character should accomplish much in the building up of trade between Chile and the United States.

It is the hope of the people of Chile to establish a merchant marine, and, in the event that American capital should assist them, the most satisfactory arrangement would be for the vessels to bring American coal, cotton, lumber, fish, steel, hardware, and general merchandise to Chile, and return copper, nitrates, hides, and wool. Arrangements should be made, if possible, for a greater tonnage coming south than going north, since that would tend to adjust the present inequality in tonnage.

The distance from Valparaiso to Panama, with stops at five principal intermediate points, is about 2,500 miles. From Panama to New York is about 2,000 miles. Not more than three intermediate stops would be necessary in addition to the passage through the canal. This would mean a total of, perhaps, 30 hours' delay, aside from loading and unloading the cargo. Apart from losing time, the boat could make the trip, at 16 knots, in two weeks' time, and, with a delay of one week in port, could make a round trip every six weeks. In the case of most correspondence such a service would make it

possible for a reply to be received in five weeks. This would seem to be a consummation worthy of great effort.

The constant winter delay of European mails for Chile would also be eliminated, since mails are handled from New York to Great Britain and the Continent in six days. Therefore the European mail via New York would be put through in three weeks during the entire year. This would be at least as good a service as has ever been obtained on a mail delivery from Germany or Great Britain to Chile, and would have the added advantage of being thus uniformly prompt, even in the South American winter. It would also seem desirable to establish the custom of routing passengers, mail, and fast freight to Europe via New York, rather than the reverse, as has sometimes been the case. It may be interesting to note in this connection that positive action is being taken, on the part of various Americans, for the development of such a service. It may be noted also that one of the leading European lines, which has been running boats for a number of years in this part of the world, has stated that as soon as the present (1915) unsettled conditions are past it will extend its service to New York and operate under as great a speed as conditions may warrant.

FINANCE AND BANKING.

In view of the fact that any great development of commerce must take into consideration the banking facilities and the solvency of the principal purchasers, the following data are here presented with reference to Chile.

The national external debt of Chile is approximately £34,500,000, or about \$50 United States gold per capita. The sinking fund and interest on this obligation amount to £3,320,000 (\$16,156,780). In addition to the external debt, there is an internal debt in paper currency of approximately 181,000,000 pesos, of which about 150,000,000 pesos consists of Government notes in circulation (each peso having the value of about one-sixth of an American dollar). It is hoped some time to convert this paper on the basis of about \$0.20 United States gold to the peso, and at this rate of conversion there is sufficient gold in European banks to be equivalent to about 102,000,000 gold pesos, or approximately \$20,000,000 in United States currency. In the event that conversion should be made at this rate, from 55 to 60 per cent of the face value of the peso would be held in the Government vaults in gold. However, there is not the slightest probability that conversion will be attempted before 1917, and it may not be done then unless existing conditions and the opinion of the wealthier classes be altered.

There has been a deficit for several years in the operation of the Chilean Government. Taking 1912 as the most recent year in which conditions approached the normal, it may be noted that the national receipts were approximately \$78,000,000 and the national expenses \$85,000,000. Such deficits will probably be covered by extraordinary taxation.

CHILEAN BANKS—NEW YORK CORRESPONDENTS.

There are in Chile 25 banks with a combined capital of approximately \$36,000,000 and deposits of \$90,000,000. These various banks have 112 branch offices. In addition to these, there is one known as

the Caja Hipotecaria, which loans money on real estate by means of trust mortgages. These loans are generally made in paper pesos (the peso being worth at the present time about one-sixth of a dollar), and these bonds are sold or traded in on the stock exchange. This bank does not receive deposits, its real function being that of an underwriting agent for the purpose of handling mortgages on real estate. There are outstanding at present about \$40,000,000 in these loans, issued in paper currency. There are also about 58,000,000 francs of these bonds in Germany, about 50,000,000 francs in France, and £662,000 in England.

No American bank is established in Chile at the present time, much to the popular regret. There are, however, a number of European and local banks having New York correspondents in the sense that they have established mutual credits against which they may respectively draw. In the following list is given the name of the bank in Chile, and opposite it the name of the New York correspondent:

Banco Aleman Transatlántico.....	National City Bank, New York.
Banco Anglo Sud Americano.....	Anglo South American Bank, New York.
Banco de Chile.....	Guarantee Trust Co., New York.
Banco de Chile y Alemania.....	G. Amsinck & Co., New York.
Banco Español de Chile.....	National City Bank, New York.
Banco Germánico America Sur.....	National Bank of Commerce, New York.

In addition to these banks, certain commercial houses buy and sell drafts, and although the amount of their transactions comes to a large sum in a year, this is an incidental, rather than a fundamental, business with them.

THE QUESTION OF EXCHANGE.

The exchange business has been almost entirely through London until a short time ago, and the American dollar has been so little known to the public that a \$20 gold piece was taken as £4 sterling, when accepted at all. But the financial difficulties of 1914 have tended to introduce the dollar and make its value known. In August, 1915, a remarkable departure was made, in decreeing that expenditures could be made on certain Government work up to \$480,000 United States gold. All such decrees for foreign purchase had previously been made in pounds sterling. Inasmuch as the question of exchange is a very important one in Chile, there is shown on the opposite page a small diagram giving the variation in money of the country, as compared with the value of American cents. The peso to which this graphic representation refers is not the gold peso worth 18d. in British currency (\$0.365 United States gold), in which customs duties are paid; it is the paper peso—the only one that is encountered in commercial use. It is obvious that when the value of the paper goes down, foreign merchandise apparently becomes more expensive, and bills falling due on a falling value of the peso are sometimes not met as promptly as though the reverse were true. This is a particularly important point to the exporter's credit department, since it is often necessary to grant an extension at such times.

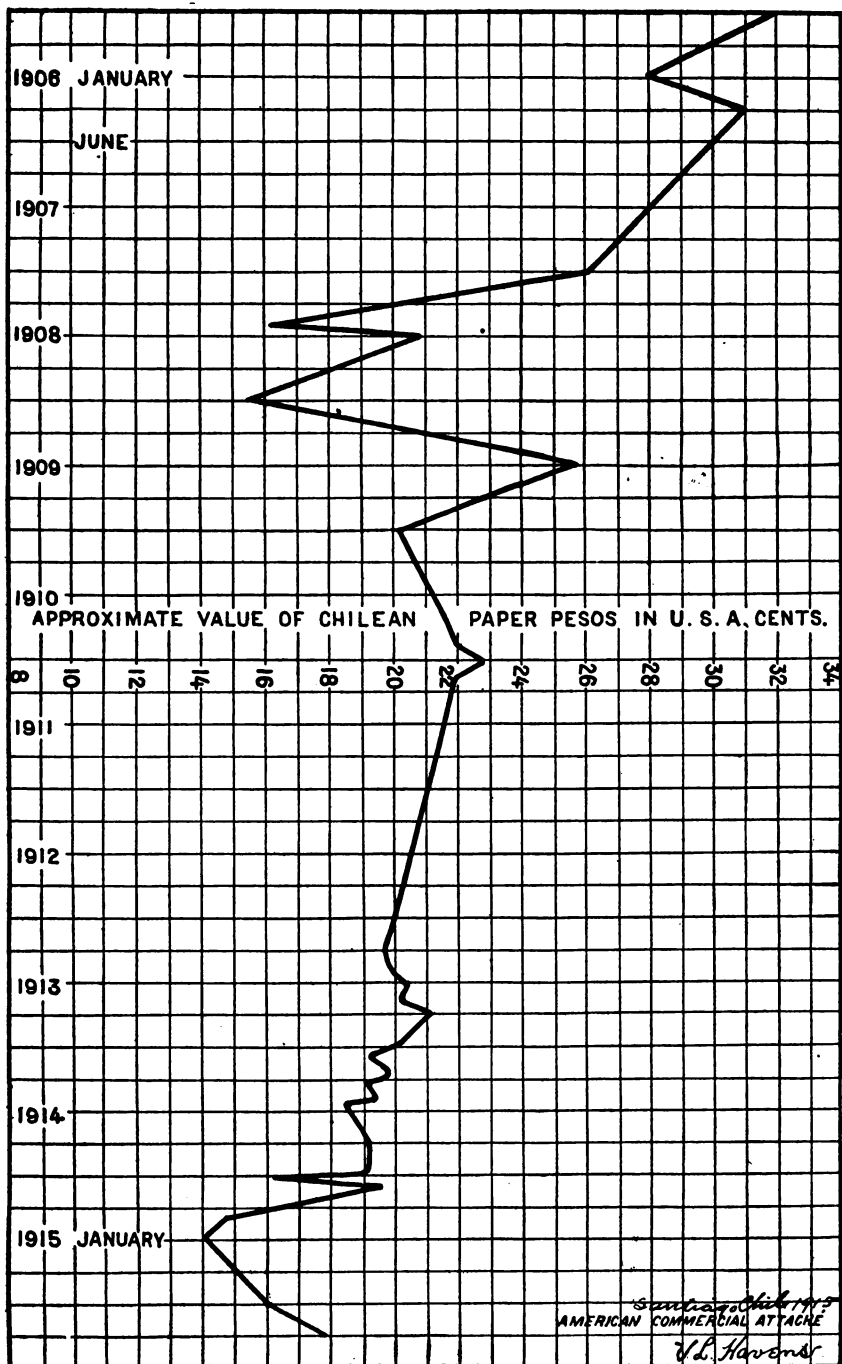


FIG. 3.—CHART OF EXCHANGE VARIATIONS.

II. EXTENT TO WHICH HARDWARE IS USED.

Having considered in a general way the principal features of Chile, which are as applicable in studying the development of one line as another, we may now take up the presentation of other facts more specifically related to the hardware trade. Certain general problems, however, particularly as related to credits and financing of sales, will be considered later.

The extent to which hardware of various kinds is used in Chile, although it can not be precisely calculated from the records because of the great variety of materials included in the official classification, may be described as amounting to something less than \$1 per capita, or a total of about \$3,500,000 per year. The items that each exceed \$100,000 in annual consumption are enameled ware, machine bolts, bolts and screws, railway bolts, shovels, lamps, nails, and locks, their importance being in the order named. By far the greatest of these is enameled ware, which alone exceeds \$500,000 in annual importation, in addition to the small amount produced by the five local establishments. The local product is almost entirely blue, is of the cheapest variety, and is made and presented in such a way as to be very unattractive. The work is generally done in a factory making tin articles as well, and among all the producers less than 100 persons are employed, including many girls.

The records of machine bolts and screws are so closely interwoven that it is very difficult, not to say impossible, to separate them in such form as might be desired. In the statistical data submitted (see p. 36), which differs to a small degree from the form in which the records are kept at the present time, carriage bolts, machine bolts used in construction of buildings or by carpenters, stove bolts, screws with washers for use in roof construction, and screws that are driven into wood with a screw driver (which is what practically all North Americans would mean by the word screw) are all reported under one classification.

BOLTS FOR USE OF RAILWAYS.

The reason that railway bolts have been included is that certain tariff rates have been applied to all bolts that are specifically destined for the use of railways. This item includes track bolts. It is worthy of note that a few of the hardware firms having continual dealings with the railways—perhaps the largest single purchaser of the hardware line—frequently find it convenient to make bids on a great variety of bolts at the same time. It is not surprising that these firms should desire to take advantage of any close relations they may have established, for the purpose of selling some articles that are not commonly considered a part of their special line. It would be very difficult to separate the actual imports of track bolts from locomotive bolts, or those used in construction of railway cars, trucks, water tanks, anchors for bridge work, etc., as they are for railway use and subject to a rate of duty differing from that applied to other bolts. It is even conceivable that an importer might declare certain articles as railway bolts, because of their peculiar form, even though the articles were destined for other uses, since he would thereby, in

some cases, take advantage of the lower rate. Considering track bolts alone, it may be interesting to note that there are in operation in Chile 8,153 kilometers (5,066 miles) of track and that the renewal of 10 per cent of the bolts per annum would require about 700,000 pounds of material. Ordinary new construction might make the total an even million, or, we may say, 25 per cent of the total railway-bolt importation. This is not a definite figure, but the rough estimate is offered for what it may be worth.

SHOVELS AND HANDLES—HARDWARE IN NITRATE "OFICINAS."

Shovels are not only used by the railways, nitrate producers, miners, and other large companies, but are also in the hands of nearly all the people. The peculiar likes and dislikes among the latter purchasers are catered to by some merchants. The organizations that are headed by competent managers would not permit the use of any convenient stick as a shovel handle; but the small builder of laborers' houses or the poor man who has a garden, is a farm renter on a small scale, or works for the larger companies by piecework, has his own ideas with regard to the handle he will use. Generally he prefers to cut his own shovel handle from available wood. This is partly the result of custom, partly of the fact that it appears cheaper, and partly of the import duty that he is thus able to avoid.

In connection with the nitrate producers, one may mention here the more common classes of hardware used in the nitrate "oficinas" in the north of Chile. The following list was prepared by an engineer intimately acquainted with the requirements in that industry:

Bolts and nuts; rivets, $\frac{1}{4}$ to 1 inch; screws, $\frac{1}{4}$ to 3 inches; wire nails, $\frac{1}{4}$ to 6 inches; door locks; door bolts; window bolts; Yale padlocks; plain hinges, 1 to 4 inches; porcelain door knobs; corrugated iron, 6 to 9 feet; copper rivets; carpenters' tools; miners' hammers, 3 and 5 pounds; cold chisels; white metal; window fasteners; window weights; pointed shovels; rounded shovels; pickaxes; pickax handles; handles for miners' hammers; clothes hooks; pincers; monkey wrenches; brandishers for steel cleaning; spanners; copper wire; zinc wire; wire netting; wheelbarrows; zinc buckets; pine grease; paraffin; waste; wire rope for winches; sheet iron; tools for mechanics' workshops; iron brackets; axes; adzes; hatchets; jim crows; files; sandpaper; emery; black lead; glue; shellac; resin; wiring for electric bells; carpet nails; iron chain, 1 to 2-inch link; buckles for straps, harness, etc.; saddlers' needles.

LAMPS AND GLOBES—IMPORTATION AND PRODUCTION OF NAILS.

The real number of any given kind of lamps that is imported or made in the country is not shown in any available record. The customhouse reports the following articles under this classification: "Kerosene, gas, or electric lamps, with or without burners, globes, reflectors, chimneys, counterweights, elbows, hooks, arms, or other parts, made of steel, iron, tin, copper, brass, or glass, to be fastened to the wall, suspended, or set upon a table." Incandescent globes are not included unless they should be attached to a chandelier, and this, of course, would be a very unusual method of packing or shipment.

Nails are imported into Chile in large quantities, in spite of the fact that there are several wire-nail factories in Santiago, two in Valparaiso, one in connection with a sugar refinery in Vina del Mar, two in Concepcion, one in Valdivia, and one in Talca. The wire is principally imported from the United States. The business is practically in the

hands of one firm, because the installation is inexpensive and the various local producers cut down the prices to a point so low that they were all about to fail. The principal creditor of several of them, therefore, organized the industry and supplies them with wire. He does not permit them to sell without profit. In spite of these manufacturers of wire nails, about 1,000 tons of this product were imported in 1914. They were sold through retailers or to large companies on direct order, the latter being permitted in some cases to import free of duty because of concessions made for the development of certain industries. Actually, there was a very small amount, if any, coming in under such conditions during the year immediately preceding the writing of this report. It is a custom, however, to make concessions of this character from time to time, and because of that fact American manufacturers should always watch the records of concessions granted throughout Latin America. These data are generally available in the publications of the Bureau of Foreign and Domestic Commerce, the Bulletin of the Pan American Union, and other publications issued in the various countries, which are available to the foreign representatives of the manufacturers.

The importation of cut nails during the year 1914 was about 2,000 tons. No factory is known to exist locally that makes this kind of nails. The United States practically controls this business at the present time, with the exception of the variety called "cornered" nails, this term indicating that they have six sides, or are rounded on top, or have some other peculiar form that makes them desirable for use in nailing leather to seats or saddles or in finishing interior woodwork. Great Britain, Germany, and Belgium sell the greater part of this kind.

CHARACTER OF LOCKS USED—THEIR MANUFACTURE AND SALE.

The manufacture of locks is one that has not yet gained any foothold in Chile. The importation seems very great for a country that has but three and a half million people, the customhouse valuation being about \$160,000 per year. The large majority of these, such as furniture locks and padlocks for gates and stables, are of a cheap class and retail at from 20 to 50 cents. In figure 6 are shown certain locks that indicate the general type finding a market along the west coast of South America. In a general way it may be said that the locks used in Chile are of a highly unsatisfactory kind.

It is common knowledge that many of the cheapest kinds of European locks are not made by skilled workmen, but are assembled and cut to fit by farmers and other laborers whose employment is seasonal and who have considerable spare time, especially in the winter. It is understood that they carry a number of the unassembled parts to their homes and put them together there. Anything that will pass muster at some price is, of course, so much to their advantage. In times past the number of French locks of this type that have been offered by German salesmen has been indeed surprising. They were collected by German and French houses, it is believed, and sold abroad as German or French, as the nationality of the collecting house might be. This is not to be taken as evidence of a tendency toward deception on the part

of the salesmen, but rather as showing that the origin of the bill of lading does not invariably afford a reliable indication with respect to the actual nationality of the workmen. It was, of course, easier for German firms to collect such goods and reexport them in a made-up bill of goods than it was for houses of any other nationality, because of the free port facilities which that country offers to its commercial houses.

As is true of so many articles, the North American manufacturer enjoys a fair, but relatively small, share of foreign business in the better grade of locks. This condition arises from the fact that he produces an article which virtually sells itself because of its quality and (at least to a reasonable degree) without reference to the price or credit terms offered.

GENERAL CONSIDERATIONS AFFECTING AMERICAN TRADE.

It may be remarked in passing that the writer of this report finds no occasion for surprise in the comparatively small amount of business that manufacturers of the United States obtain in certain lines. He is rather surprised by the amount that is actually secured, in view of the methods by which, only too frequently, their business in foreign countries is conducted. It must be realized that competition in most foreign countries is very keen, and one notes with regret that many American firms apparently cease their efforts abroad when the domestic trade is thriving. Certain American companies, however, after many years of effort, have been able to build up a foreign business based on concretely practical experience, and they form an example worthy of emulation by less far-sighted and judicious manufacturers. To them great praise is due, and any other exporter desirous of achieving a similar success should study very carefully certain vital questions.

Are his goods of such a quality or are they covered by such patents that they can not be replaced from some other source? If that is true, then can he not find a place where they may be used even in competition with goods from other countries or factories? Could he not offer such credit facilities that purchases might be made on installments? In foreign markets where he has failed because his goods were too expensive or seemingly did not fill a need, could he not work up a demand by emphasizing their advantages or by introducing such associated economies as to make his products a part of an economical scheme, if not cheap in themselves? Or can he not establish connections with a foreign manufacturer who can make use of parts of his product and introduce these parts cheaper than they can be made by other nations? In many countries the import duty on spare or repair parts is much lower than on the finished article, and the customs duties are therefore of interest in the case of most articles that are made of various parts.

REASONS OPERATING TO PREVENT CHILEAN MANUFACTURE.

Returning to a consideration of the specific subject in hand, it is of interest to note that complete hardware—that is, from the raw material to the finished article—can not at present be produced in Chile to any great extent. The primary reason for this fact is that,

among the thousands of different articles that are included under this general trade name, there are a great many specialties that can only be produced under peculiar conditions that are characteristic of certain special localities. It is obvious that in a country in which the very insufficient supply of male labor is reasonably intelligent, physically strong, poorly paid, and of consequent nomadic tendencies, there is naturally little inducement for the establishment of factories involving the permanent investment of large capital in the production of an article that requires great skill, a large market, and a supply of semiprepared material ready for manufacture.

Chile is rich in high-grade iron ore, a wonderful variety of wood, and a supply of coal far beyond the requirements of the people for many generations. There is an abundance of water power and an average of one seaport (such as it is) for every 45 miles of coast line. But the Chilean iron will not be locally transformed into steel, because of the opposition to the importation of foreign coal to compete with the product of the local mines. There is a very evident unwillingness to reduce the price of local fuel to such a degree as will be necessary if the establishment of industries in the country is to be reasonably facilitated. The manufacture of steel under the ordinary methods requires coke. The Chilean coal, in the first place, is of a poor coking quality, and, in the second place, the gas, tar, ammonia, and other by-products would not find a ready market. It may be added, also, that the demand for steel along the west coast of South America is insufficient to keep a steel mill occupied in any group of specialties. It is true that there is a great deal of steel and iron used in Peru, Bolivia, and Chile, the total annual demand in these three countries amounting, perhaps, to 250,000 tons. But this ranges from rivets, nails, or wire, to rails, beams, shapes, wheels, axles, and various machine parts. In round numbers, about half of this tonnage consists of railway material for tracks, telegraphs, fences, and other equipment, and although the amount mentioned would easily maintain a steel plant if the product were all wire, for example, it would not be sufficient when divided among so many diverse articles.

FOREIGN COAL IN CHILE.

There is, at the present time, a very earnest tendency toward the prohibition of entry of foreign coal into Chile, in so far as it may be possible to accomplish this end by the favoring of local coal for railway use and possibly by the placing of an import duty on all entering coal. Whatever action is taken may not affect the introduction of coal into the nitrate regions, because no perceptible advantage would accrue as regards increased consumption of Chilean coal. Ships that might ply between the local ports of Chile could have nothing to carry south if they took coal north, and the ships coming around the Horn from Europe, bound for the nitrate fields, come universally under charter and can not stop to take coal north. The possible result, then, would simply be to increase the price of imported coal into the nitrate fields, with no apparent benefit to the Chilean coal miners. Inasmuch as the price of Chilean coal is fixed in relation to the freight rates from Australia and the United States rather than on a produc-

tion cost of about 12 pesos (or \$2 American gold) per ton aboard ship, it is believed that any increase in tariffs or any prohibitory act with reference to importation would most seriously damage all the industries of the country in which coal is used.

III. FACTORS AFFECTING FUTURE DEVELOPMENT.

In a consideration of the future of the hardware market it is desirable to review, in a cursory way, at least, the leading industries in the territory under investigation, since these are likely to indicate the lines in which development may be rapid, the general character of the articles used, and, in some cases, the lines in which competition might be expected.

Statistics for some of the principal industries of Chile are shown in the following tables:

MINING AND METALLURGY: PRODUCTION DURING 1914.

Minerals and metals.	Quantity.	Value.	Minerals and metals.	Quantity.	Value.
Argil (white clay), metric tons ^a	10,947	\$27,970	Molybdenum.....pounds..	5,952	\$1,315
Borax.....metric tons..	31,907	1,628,468	Nitrate.....metric tons..	2,463,356	103,399,368
Coal.....do.....	1,086,946	7,934,706	Perchlorate.....pounds..	122,202	8,003
Copper.....pounds..	98,470,107	11,476,108	Potash salts,metric tons..	2,000	3,656
Gold.....Troy ounces..	34,622	202,765	Salt, common.....do.....	24,805	316,881
Guano.....metric tons..	20,594	300,668	Silver.....Troy ounces..	1,176,082	436,791
Gypsum.....do.....	5,000	54,750	Sodium sulphate, metric tons.....	200	3,650
Iodine.....pounds..	1,077,955	2,096,993	Sulphur.....metric tons..	10,008	438,350
Iron ore.....do.....	140,005,857	463,591	Zinc.....pounds.....	2,646	64
Lead.....do.....	151,638	2,009	Total.....		129,099,507
Lime.....metric tons..	54,067	296,017			
Marble.....do.....	200	7,300			

^a Metric ton =2,204.6 avoirdupois pounds.

MINING AND METALLURGY: NUMBER OF WORKMEN AND DAILY WAGES.

Industries	Number of workmen.	Average daily wages.	Industries.	Number of workmen.	Average daily wages.
		<i>Chilean paper pesos.^a</i>			<i>Chilean paper pesos.^a</i>
Borax.....	650	5.50	Lime, gypsum, and marble.....	293	5.41
Coal.....	8,105	4.80	Nitrate.....	43,979	6.58
Copper:			Salt.....	220	6.37
Mining.....	11,142	5.45	Silver mining and metallurgy.....	423	4.5
Metallurgy.....	4,897	5.49	Sulphur.....	347	7.46
Gold mining and metallurgy.....	400	4.50	Total.....	71,106	
Guano, etc.....	400	4.00			
Iron mining.....	250	4.00			

^a The wages are quoted in paper currency because the exchange variations make it impracticable to convert the figures at any definite ratio. The value of the Chilean paper peso on April 1, 1916, was given by the United States Treasury Department as approximately \$0.14. In this connection see p. 20.

AGRICULTURE.*

Resources, implements, and products.	Amount.	Resources, implements, and products.	Amount.
Agricultural areas:		Production of various articles—Con.	
Irrigated land.....acres.....	2,452,462	Butter.....pounds.....	2,701,081
Land (additional) capable of being irrigated.....acres.....	4,079,277	Cheese.....do.....	6,302,530
Pasture lands.....do.....	7,983,420	Chick-peas.....do.....	2,689,979
Agricultural machines, all kinds, number.....	28,493	Clover.....metric tons.....	15,308
Agricultural vehicles, all kinds, number.....	129,274	Corn.....do.....	38,242
Live stock:		Flax.....pounds.....	389,495
Cattle.....number.....	1,968,620	Fruit.....do.....	39,172,411
Horses.....do.....	716,579	Hemp.....do.....	2,278,896
Sheep.....do.....	4,602,317	Honey.....do.....	1,579,832
Other animals.....do.....	641,127	Lentils.....do.....	2,274,927
Production of various articles:		Milk.....quarts.....	144,568,861
Alfalfa.....metric tons b.....	288,823	Oats.....metric tons.....	64,405
Barley.....do.....	121,217	Peas.....pounds.....	17,406,623
Beans.....do.....	37,471	Potatoes.....metric tons.....	249,546
Beeswax.....pounds.....	220,460	Rye.....do.....	4,080
		Tobacco.....pounds.....	6,282,247
		Wheat.....metric tons.....	446,423
		Wine, aguardiente, etc.....gallons.....	78,418,450

* The statistics in this table were taken from an official publication of the Chilean Government, "Anuario Estadístico, Vol. X, Agricultura, Año 1913-14." The Central Statistical Bureau of Chile has a mailing list of 100,000 farmers and interested persons who are required by law to render reports on the area planted and other data related to agriculture. It may be estimated that about 1,000,000 people—owners, renters, and employees—are engaged in farming in Chile.

b Metric ton equals 2,204.6 avoirdupois pounds.

MISCELLANEOUS STATISTICS OF MANUFACTURES—1913.*

Items.		Items.	
Manufacturers.....total number.....	6,215	Production.....U. S. gold.....	\$107,000,000
Common laborers.....do.....	74,618	Horsepower.....	64,529
Other employees.....do.....	6,079	Electric (purchased).....	10,296
Capital, approximate.....U. S. gold.....	\$100,000,000	Gas.....	7,900
Raw material used:		Hydraulic.....	14,435
Domestic.....do.....	\$39,000,000	Petroleum.....	2,480
Imported.....do.....	\$21,000,000	Steam.....	29,418

* No statistics are available for years later than 1913.

VALUE REPRESENTED BY CHILEAN INDUSTRIES—1913.

Group numbers.	Industries. ^a	Total number.	Ownership.			Value of raw material.		Value of production during year.
			Chilean.	Foreign.	Combined and not declared.	Chilean.	Foreign.	
I	Alcohol, drinks, and preparations of alcohol.....	439	220	183	36	\$1,323,400	\$485,372	\$10,454,787
II	Pottery, waxwork, glass.....	5		2	3	74,340	16,810	445,840
III	Foodstuffs.....	1,069	537	495	37	22,313,163	4,088,132	48,275,559
IV	Gas and electric plants.....	97	1	3	93	188,847	1,047,483	5,133,823
V	Shipyards.....	37	25	7	5	86,246	36,627	519,505
VI	Clothiers.....	970	581	338	51	390,593	4,144,529	10,533,501
VII	Wood and its manufactures ^b	1,109	833	243	33	4,370,127	471,926	10,525,630
VIII	Construction and material.....	95	37	42	16	170,508	358,754	1,658,417
IX	Textiles.....	44	21	12	11	314,328	1,144,693	3,136,964
X	Metals and their manufactures.....	1,054	711	279	64	282,638	2,122,316	7,665,319
XI	Furniture.....	303	221	71	11	380,311	207,746	1,614,593
XII	Paper and printing establishments ^c	360	275	67	18	159,455	1,350,312	4,509,775
XIII	Leather, hides, and manufactures ^d	1,373	999	337	37	6,635,788	1,330,551	14,963,045
XIV	Chemical and medical products.....	172	95	60	17	1,580,499	1,213,704	4,875,835
XV	Tobacco and manufactures.....	192	129	30	33	540,213	81,102	4,003,721
XVI	Vehicles and transportation materials.....	321	260	56	5	189,644	238,218	1,394,971
XVII	Various.....	201	95	82	24	125,759	438,175	1,268,200
	Total.....	7,841	5,040	2,307	494	39,128,859	18,776,450	130,969,494

* The various industries are arranged in the order in which they appear in the official Chilean statistics.

^a Includes carpenters' shops where a general business is done, cooper shops, turning shops, builders of doors and windows, and makers of parquet floors, of shoe lasts, of moldings, and of coffins.

^c Includes manufacturers of paper and cardboard, printing shops where a general business is done, lithographers, binderies, and makers of notebooks and of paper bags.

^d Includes tanneries, shoe factories, and shops where shoes are made to order, saddle makers, furriers, and makers of trunks and hand bags.

INDUSTRIES IN METALS AND THEIR MANUFACTURES—1913.

Character of industries.	Total number.	In Valparaíso Province.	In Santiago Province.
Blacksmiths.....	485	23	92
Foundries.....	96	14	39
Tinsmiths.....	339	46	152
Machinery.....	4	2	2
Nails.....	7	.....	3
Stoves.....	10	.....	7
Scales.....	1	.....	2
Saws.....	2	.....	2
Wire netting.....	13	.....	11
Metal bottle stoppers.....	6	1	3
Bottle capsules.....	2	.....	2
Tin and enameled ware.....	5	1	3
Metal ornaments.....	5	1	4
Metal letters.....	1	.....	16
Metal engravings.....	17	1	3
Metal curtains.....	3	.....	3
Bedsteads.....	6	2	6
Horseshoes.....	13	2	1
Bolts, nuts, rivets.....	2	.....	3
Bits and spurs.....	9	.....	3
Flows.....	3	.....	3
Munitions.....	1	.....	1
Lead pipe.....	2	2	.....
Acetylene lighting machinery.....	1	.....	4
Boilers.....	7	.....	1
Copper and bronze.....	6	.....	4
Silver plating.....	6	.....	4
Galvanoplastics.....	2	.....	.....

NOTE.—Practically all the metal manufacturing is done in the Provinces of Valparaíso and Santiago, as may be seen above by comparison with the total column. The only exceptions are in the case of blacksmiths and tinsmiths, who are somewhat evenly distributed throughout the entire Republic.

CHILEAN INDUSTRIES AND EFFORTS TO DEVELOP THEM.

The number and variety of industries already established in Chile may seem to the reader somewhat remarkable, in view of the very large percentage of the people who are engaged in mining and agriculture. It is to be remembered, however, that the existing factories are principally of a modest character and have had to contend with many difficulties. Chief of these, perhaps, is a sentiment (not peculiar to Chile, by any means) that an article made in the country is not as good as the imported one. In addition to this, the country is new and sparsely populated, and the Chilean labor has not been trained to factory work except in isolated cases and therefore is not, in general, as efficient as might be desired. A further and most important element, until comparatively recent times, has been the fact that the men of the laboring class had little opportunity for education or for the gratification of such ambition as they had, or might have had with the benefits of instruction.

Conditions are rapidly changing, however; education is becoming more popular, and the governing class is growing keenly aware of the enormous drain on the country's resources because of the foreign debt and the importation of practically everything consumed in Chile. Import duties were increased a few years ago to the extent of 5 per cent, and a law was recently enacted by the National Congress that still further increases them. A strong protective tendency has been developed throughout the country, and there is an association made up of practically all the manufacturers, leading farmers, and merchants, known as the Sociedad de Fomento Fabril (Society for

the Development of Manufacturing), the object of which is to foster in every way possible the establishment of local industries. Day and night manual training schools for both young and old have been opened, especially for training laborers to fill positions in the skilled trades. The schools are new and not as well patronized as it is expected that they soon will be. Wherever and whenever possible, pressure is being brought to bear on all public institutions to use articles that are made in Chile, and many factories exist because of the favor of some branch of the Government. Hardware manufacturing, however, particularly as regards tools, cutlery, shelf stock, and building fixtures, is not an industry that would naturally come first in a new land.

CHEAP MATERIAL IN DEMAND.

Being a new country and having many people with little money, Chile uses much that is cheap and of poor quality, in which the European manufacturer, because of his cheap labor, not only can compete easily but can almost control the market. As the higher quality is demanded, the opportunity for American competition increases rapidly, and the future for the articles made in the United States seems bright, always provided that steps are taken to give the buyer the thing he asks for and business facilities comparable to those afforded by the European exporter.

It is probable that the use of cheap material will continue for some time in the rural districts, because on the small farms, or those in the new southern agricultural section, the people are poor, while on the large estates there is little security of employment.

PROBABLE IMPROVEMENTS IN FARM DWELLINGS.

Numerous small houses are built on the large farms and are rented, for six months or a year, to a man who will cultivate a certain amount of ground on a share basis and also work for the owner a certain part of the time.

Since the owner has had no special interest in attending to the houses used by this class of renters, and the renter himself has had much less reason for improving them, their condition has not been bettered very rapidly. At least 35 per cent of the population live in houses of a decidedly undesirable character.

A number of irrigation canals are now projected that will add an enormous quantity of land to the arable area, and it is expected that some trouble will be experienced in securing enough men to cultivate it. With the great expense of irrigation, which in Chile seldom amounts to less than \$20 per acre, some inducements must be extended to the workmen or renters to remain on the land, and one of those incentives will undoubtedly be an alteration in the quarters offered.

In any event, additional houses must be built, and practically no farmer would think of duplicating the types to which reference has been made. Living standards are continually improving, and as they improve and the new land is brought under cultivation, more and better building hardware must be used. Not only are the farmers anticipating difficulty in securing help for the new lands, but the

development of mining is calling men away at present. Immigration, at least among laborers, is practically negligible, except in the nitrate fields of the north, where Indians from Bolivia, and occasionally a Peruvian, come in.

It appears from these facts that the use of merchandise will depend not so much on the introduction of foreign customs as on the natural tendencies of the Chilean people to seek what is economically best suited to their needs or purses.

POSSIBLE INFLUENCE OF EMIGRATION.

Heretofore emigration from Chile has not been great, but it is not unlikely that the European difficulties may affect this. The Argentinians have depended for many years on temporary immigrants known to them as "golondrinas" or "swallows," who have come from Spain and Italy in the spring and returned to Europe after the wheat harvest.

It is not likely that the crop years between now and the close of the European war will witness the arrival of so many workmen in Buenos Aires, notwithstanding the fact that every effort is being made to increase the wheat production. The natural result will be a shortage of labor. In Argentina laborers are paid about \$1.20 to \$1.50 United States gold per day. In Chile the rate of pay is about half this amount. When one considers these facts, and also that a Chilean laborer can readily walk to the grain fields of the Argentine in less than 10 days (in the event that he has no money available for train fare), it seems not unlikely that efforts will soon be made to improve the condition of the laborer in Chile as a means of economic defense and of keeping the labor on the farms. The total immigration into Chile during five recent years was only a little more than 13,000 persons. The excess of births over deaths is more than 10 times this number.

AMELIORATION OF LIVING CONDITIONS IN CITIES.

It is expected that the improvement in the condition of the city laborer and his living quarters will be even more rapid than that of the rural workman. This may be attributed to the natural interest developed in sanitation and to the fact that the city laborer is not only dissatisfied but comparatively inefficient on account of his mode of life.

The demand for better homes is already being felt, and is being fostered most worthily by the Consejo Superior de Habitaciones Obreras (Superior Council for Workmen's Habitations)¹. This organization is vested with considerable power and employs authorized inspectors who investigate the condition of every tenement house ("conventillo" or "cité" is the local term) and who may order the demolition of such habitations as are found to be insanitary or otherwise unfit for use. No house can be rented after it has been officially condemned. The principal activities of the organization have been in Santiago, and its attention is naturally directed to the large cities. Its efforts have also borne fruit in other parts of the country from

¹ Two reports of this body were transmitted by Commercial Attaché Havens and may be examined by interested persons. See Appendix, p. 176.

time to time, but the law governing its jurisdiction is applicable only to communities of more than 8,000 persons. The work that is being done by this official group is excellent and merits great praise.

New construction is being undertaken for the benefit of workmen, and regarding its progress the following notes received from the Superior Council may be of interest:

Since 1907 the Superior Council has constructed 325 separate houses having two, three, or four rooms each, and will probably continue at the rate of 50 per year. Private capital builds at least twice as many. During the same time the Superior Council has caused to be destroyed 678 tenement houses, where 15,000 people lived, and orders have been issued to destroy 100 more. Many more houses would be built if there were funds available. Money invested in this work is guaranteed as to interest.

The people who live in tenement houses are ignorant common laborers who earn about 4 pesos per day, or artisans of the class who are improvident. In the case of the separate houses built by the council, the renters and purchasers are mail carriers, barbers, store clerks, and the serious class of artisans.

There are about 2,000 tenement houses in Santiago that should be torn down, and perhaps as many scattered throughout the rest of the country.

The preceding statements refer especially to city dwellings of the poor. In the rural districts the habitations are very unsatisfactory. However, it must not be thought that the better classes of houses are unknown in Chile. The house occupied by the person of average means is the well-known Spanish type, with masonry walls, barred windows, enormous doors, tiled floor and roof, and French building hardware.

In addition to the work being done by the Consejo Superior de Habitaciones Obreras, the Mortgage Savings Bank (Caja de Crédito Hipotecario) has built about 90 houses of a fairly good class for workmen. The property is sold to the bank's clients at cost of the land plus cost of the houses. The houses average about 800 square feet of floor space and cost from \$1,200 to \$1,400. Some cost twice as much, but these are rare exceptions. The architect in charge of the design and construction of these houses has made the following estimate as to the division of the cost: Foundations, 15 per cent; masonry, 35 per cent; roofing and floors, 25 per cent; doors and windows, 10 per cent; plumbing, 7 per cent; water and light, 4 per cent; paint and paper, 3 per cent; building hardware, 1 per cent. This may serve as a crude basis for determining the relative amount of money spent on the details of an ordinary building. The cement, lime, brick, stone, clay pipe, and wood are of local origin. The galvanized iron roofing, iron pipe and plumbing fixtures, water tank, lighting fixtures and installation, glass, paint, wall paper, and building hardware are imported.

MANUFACTURE OF FURNITURE IN CHILEAN SHOPS.

In connection with the market for cabinet hardware, it may be noted that the import duties on furniture are very high. This tends to perpetuate the local manufacture of furniture in little shops scattered all over the country, as well as the use of cheap fittings. It may be said that perhaps the greatest factor affecting the quality of cabinet and furniture hardware is that it is made by very poor men (in their own shops, perhaps) who have little or no capital.

If any one of the people comprising at least two-thirds of the population wants a chest of drawers, an ordinary sideboard, commode,

clothes closet, or similar article, he contracts with an "ebanistero" or cabinetmaker for a given size, carved or adorned in a given manner, to cost a certain sum. Obviously that workman will not put on a hinge or lock that costs 60 cents if he can find that one is available at 30 cents. He buys the cheapest that can be found, and the person purchasing the finished product is seldom able to recognize the difference once the article is finished.

The majority of sales in Chile are of the very cheapest articles that can be produced. In the event that furniture factories should be established and a good type of furniture made, it would tend to improve the quality of hardware used. There are actually 299 establishments for the manufacture of furniture and of tapestries, so called. The real business of most of these places is making wooden furniture and, in some cases, upholstering it. The total number of employees is about 2,200. Since this custom with respect to furniture is an old one, it is not likely that it will be soon abandoned. Lately some aggressive merchants attempted to establish a factory for good furniture, but they were unsuccessful. They state that men trained to make such furniture as is in common use in the United States can not be found in sufficient numbers to make the project worth while. It therefore seems that the outlook is for very cheap cabinet hardware, with only a small sale of the better grades.

TENDENCY TOWARD BETTER HARDWARE—PROSPECTS FOR AMERICANS.

There seems no reason to believe that there will be a sudden increase in the amount of hardware used per annum, but, as noted in the remarks on building construction, the tendency seems to be toward a better grade.

Not a little North American capital is being invested in mining in Chile, and the coming of these interests tends to increase the use of products from the United States. In addition to this, the merchants are somewhat confused and anxious about their future supply, much depending on the settlement of the European difficulties. These merchants, however, do not want to lose their clientele. They must have goods, and they look to the United States at the present time for a large part of them. It is thought that a careful consideration of their present needs, together with fair treatment, will lead to an increase in sales from the United States, even though the total requirements should remain stationary or even decrease slightly.

IV. STATISTICS OF IMPORTS.

Undoubtedly the best indication of the future prospects in the hardware line is a record of the imports in the past. Having endeavored, by means of the preceding data, to convey a general conception of the probable movement, we may now present specific facts concerning the amounts of hardware that Chile purchased, under normal conditions, from the great manufacturing nations of the world.

The statistics in the following table are for the years 1912 and 1913. It has been deemed desirable to use these earlier figures rather than those for 1914, because of the fact that the outbreak of the European

war altogether deranged the customary trade of Chile during the last five months of 1914, and a table for that year would consequently give a quite erroneous and distorted idea of the country's foreign commerce. It is felt that figures for the two most recent normal years will be much more useful, indicating as they do the usual sources of the Chilean imports when they were still unaffected by the activities of the belligerent nations.

The various articles have not been arranged alphabetically, but have been grouped according to their logical relationship and in conformity with the order that will be followed later in the detailed discussions in the text. In addition to the total weights and total values, the table includes the values coming from the five producing countries that have controlled the market in the past. It should be borne in mind that small amounts were frequently imported from other sources and that the total, therefore, does not necessarily agree with the sum of the amounts from the five principal countries. All values are expressed in United States currency, and weights, unless otherwise noted, in avoirdupois pounds.

It may be noted here that, in addition to the table below, certain other statistics are given in connection with the subsequent consideration of the market for various articles. Some of those subsidiary tables have been prepared not alone for the purpose of showing the extent of the market, but to indicate as well the detailed information that is available to one who desires to study a particular article.

In the comparison of trade statistics it should of course be remembered that no general tables can be as exact as one might desire to have them. This condition is due at times to a lack of technical knowledge on the part of the customhouse examiner, who may, for example, confuse screws with bolts or door locks with padlocks. Or, again, inaccuracies may result from an error in the declaration of goods all bearing the same impost, when no advantage is seen in reporting more specifically.

Articles.	Year.	Total weight.	Value.					
			Total.	United States.	United Kingdom.	Germany.	France.	Belgium.
TOOLS.								
Saws.....	1912	319,052	\$65,638	\$49,268	\$5,891	\$9,614	\$597	\$131
	1913	173,566	34,874	22,860	4,146	6,649	1,045	175
Hammers.....	1912	267,258	44,990	22,394	15,863	5,996	716	23
	1913	218,024	36,096	13,413	14,724	6,637	900	410
Hatchets and axes:								
Agricultural.....	1912	178,197	43,994	2,791	27,765	13,350	.....	.....
	1913	115,438	28,668	3,152	2,073	23,361	82	.....
Artisans'.....	1912	253,353	61,767	31,613	2,762	27,248	.....	83
	1913	209,624	52,058	31,156	1,356	18,717	279	151
Wrenches.....	1912	42,100	10,400	6,830	1,320	2,075	60	115
	1913	33,560	8,340	5,300	1,300	1,530	90	120
Sledges and mauls.....	1912	464,393	23,400	1,378	10,190	10,154	1,213	469
	1913	493,196	24,496	762	12,023	11,358	27	326
Planes.....	1912	68,330	16,595	6,846	117	8,948	203	481
	1913	79,164	19,660	9,553	626	7,603	565	806
Squares.....	1912	11,526	2,846	1,339	726	781	.....	.....
	1913	9,307	2,312	795	1,235	281	.....	.....
Braces and drilling machines.	1912	68,800	17,060	3,600	840	12,490	.....	30
	1913	33,400	8,300	2,214	1,476	4,428	78	104
Drill bits.....	1912	20,700	20,585	8,170	4,700	7,225	60	430
	1913	39,100	38,868	11,538	20,480	6,366	166	318
Augers and gimlets.....	1912	26,200	6,485	2,150	865	3,205	15	250
	1913	29,300	7,268	1,676	1,264	4,210	118	.....
Levels.....	1912	16,250	4,257	1,405	1,245	1,571	28	8
	1913	11,067	2,749	823	192	1,732	.....	.....

Articles.	Year.	Total weight.	Value.					
			Total.	United States.	United Kingdom.	Germany.	France.	Belgium.
TOOLS—continued.								
Measures.....	1912	<i>Pounds.</i> 38,600	\$18,500	\$1,200	\$3,570	\$12,300	\$760	\$660
	1913	40,252	18,993	776	3,754	13,360	644	445
Pliers and pincers.....	1912	20,053	4,980	941	725	3,103	132	79
	1913	16,742	4,157	450	426	3,135	118	21
Carpenter's tools.....	1912	259,839	64,238	27,882	14,515	19,571	2,061	45
	1913	176,383	48,770	23,365	11,832	11,559	530	1,215
Files and rasps.....	1912	339,128	83,673	49,602	22,183	6,417	4,917	502
	1913	229,356	56,959	37,300	10,204	7,000	1,815	640
Vises.....	1912	203,612	13,528	3,956	6,124	3,199	167	81
	1913	200,700	13,291	3,709	5,408	3,360	189	608
Masons' tools.....	1912	1,219	2,916	877	645	1,257	39	100
	1913	9,880	2,452	142	180	2,070	60	.....
Mining tools and repair parts.....	1912	58,000	14,220	.....	14,000	130	90	.....
	1913	9,500	2,370	.....	800	.....	.....	.....
Pitchforks.....	1912	167,959	14,102	10,566	734	2,723	87	.....
	1913	168,000	13,492	9,622	1,888	1,818	164	.....
Shovels.....	1912	1,485,904	257,111	21,954	204,106	30,854	20	278
	1913	1,055,000	174,650	11,101	138,950	22,730	1,020	849
Hoes.....	1912	306,795	50,901	7,232	38,939	4,555	576	53
	1913	252,000	41,700	1,900	34,600	4,000	1,000	200
Scythes and sickles.....	1912	178,197	43,994	2,791	27,775	13,350	433	.....
	1913	118,880	19,680	1,200	17,500	1,000	410	.....
Rakes.....	1912	212,349	13,046	11,247	910	135	.....	23
	1913	72,930	4,220	3,120	800	300	.....	.....
Garden tools.....	1912	14,595	1,933	486	999	375	73	.....
	1913	15,310	2,030	710	870	540	70	140
Scales and balances.....	1912	921,576	66,652	53,199	8,409	3,251	1,026	22
	1913	719,650	52,695	37,260	7,265	8,030	1,160	530
CUTLERY AND RELATED ARTICLES.								
Pocketknives.....	1912	a 44,326	23,463	50	4,295	18,341	661	83
	1913	a 58,173	30,650	30	6,230	22,730	970	620
Spoons, large and small:								
Tinned.....	1912	141,779	14,084	3,687	620	9,631	107	39
	1913	148,460	14,760	3,740	320	10,170	420	10
Other.....	1912	44,472	67,432	489	60,472	4,686	697	.....
	1913	35,100	45,780	730	37,880	5,870	790	510
Knives and forks.....	1912	142,538	54,473	3,557	28,632	20,749	1,421	50
	1913	187,830	60,660	5,050	27,610	23,890	3,510	600
Scissors and shears.....	1912	103,800	84,083	29,723	14,432	36,343	3,436	372
	1913	97,110	80,400	28,500	3,600	43,200	4,400	700
Finger-nail scissors.....	1912	734	972	.....	102	745	73	6
	1913	1,420	1,870	40	210	1,520	80	20
Pruning and clipping shears	1912	15,900	13,140	1,740	3,040	4,850	3,190	320
	1913	20,400	16,900	130	6,200	5,680	1,260	730
Barbers' clippers.....	1912	6,646	3,257	1,991	619	260	138	87
	1913	2,750	680	450	10	200	20	.....
Razors:								
With ivory handle.....	1912	a 40	507	.....	197	309	.....	.....
	1913	a 185	1,580	730	170	530	70	.....
Other.....	1912	a 8,561	16,318	738	3,446	10,721	1,382	.....
	1913	a 18,228	25,510	2,540	4,370	16,900	560	1,050
Blades.....	1912	a 550	402	365	37	.....	.....	.....
	1913	a 1,270	430	250	20	150	10	.....
Shaving brushes.....	1912	1,931	2,558	47	342	1,714	456	.....
	1913	2,633	3,485	65	670	1,780	970	.....
BUILDERS' HARDWARE, ETC.								
Locks and keys:								
Iron and steel.....	1912	556,147	117,513	17,092	27,114	51,102	20,217	1,887
	1913	522,700	110,300	15,440	24,560	42,800	23,100	4,400
Other metals.....	1912	12,698	7,358	1,456	1,955	3,411	420	107
	1913	17,950	10,400	980	810	8,000	460	150
Padlocks:								
Iron and steel.....	1912	200,279	37,062	8,414	3,189	24,947	177	331
	1913	178,400	33,360	5,240	4,110	22,660	860	990
Other metals.....	1912	10,450	6,920	4,395	1,526	860	82	58
	1913	9,980	6,640	3,030	2,090	1,300	210	10
Hinges:								
Iron and steel.....	1912	512,910	51,203	36,005	2,009	11,991	1,074	124
	1913	530,700	53,290	30,280	2,450	18,600	1,850	110
Bronze.....	1912	6,753	3,514	514	409	2,228	363	.....
	1913	3,750	3,980	330	660	2,620	160	160

* These quantities are expressed in dozens.

Articles.	Year.	Total weight.	Value.					
			Total.	United States.	United Kingdom.	Germany.	France.	Belgium.
BUILDERS' HARDWARE, ETC.—continued.								
Door and window bolts and latches:		<i>Pounds.</i>						
Iron and steel.....	1912	170,027	\$17,403	\$3,166	\$5,133	\$6,341	\$2,716	\$51
	1913	178,220	18,000	4,990	4,300	5,420	2,300	990
Bronze.....	1912	5,690	2,885	219	1,056	1,109	380	120
	1913	4,000	2,000	110	480	680	600	180
Knobs:								
Iron and steel.....	1912	37,011	10,810	829	1,937	5,798	1,763	493
	1913	35,025	17,720	710	1,060	8,750	970	1,230
With porcelain.....	1912	791	243	-----	137	244	-----	-----
	1913	1,760	660	40	70	470	80	-----
Brass.....	1912	791	243	-----	339	10	44	-----
	1913	1,550	790	30	610	160	-----	-----
Other metals.....	1912	9,345	4,815	165	2,291	2,185	175	-----
	1913	9,880	4,990	120	350	4,000	410	110
Wire netting:								
Iron and steel.....	1912	1,644,516	138,966	74,676	34,945	27,205	595	1,547
	1913	1,214,000	105,100	22,730	40,730	37,650	1,020	2,570
Other metals.....	1912	8,137	3,584	74	1,774	1,525	126	85
	1913	10,100	4,340	310	2,930	820	280	-----
Nuts:								
Iron and steel, with or without thread.....	1912	312,241	15,508	736	5,693	8,125	176	779
	1913	379,195	18,834	1,110	7,723	4,889	-----	5,036
Bronze and copper.....	1912	483	240	78	55	-----	107	-----
	1913	339	169	-----	169	-----	-----	-----
Screws, with or without washers and nuts:								
Iron and steel.....	1912	3,369,472	237,224	37,496	87,034	87,412	4,530	20,751
	1913	3,690,805	261,823	19,375	88,808	85,897	6,727	60,823
Other metals.....	1912	8,514	4,241	71	2,099	2,055	46	-----
	1913	10,070	5,019	291	2,948	1,313	185	291
Bolts, railroad track.....	1912	4,098,050	262,392	21,128	85,758	69,446	-----	55,312
	1913	4,091,856	270,890	6,263	42,184	88,100	4,168	130,260
Nails:								
Wire.....	1912	8,171,019	211,860	182,895	11,852	51,160	743	8,493
	1913	2,329,525	77,136	17,797	7,124	33,350	377	18,551
Cut.....	1912	8,160,000	213,920	185,000	11,100	15,800	620	1,400
	1913	4,550,000	112,796	94,900	7,400	6,700	126	3,670
Horseshoe.....	1912	414,000	27,235	390	965	25,400	10	470
	1913	400,000	76,570	170	1,470	24,000	80	850
Washers:								
Of lead.....	1912	21,260	1,081	-----	976	53	-----	52
	1913	6,085	302	44	259	-----	-----	-----
Other.....	1912	526,772	28,398	1,495	18,056	5,220	125	1,269
	1913	780,940	39,086	2,509	26,494	6,455	409	3,212
Staples:								
For fences or vineyards.....	1912	1,327,183	45,109	16,165	886	25,898	-----	2,161
	1913	1,914,152	63,382	29,308	1,789	24,487	700	7,090
For other uses.....	1912	78,000	5,150	330	900	3,140	70	700
	1913	71,500	4,750	370	290	4,000	70	20
DOMESTIC HARDWARE.								
Pots and pans:								
Iron, sheet or perforated.....	1912	483,002	23,990	437	19,239	3,559	120	635
	1913	400,364	20,315	38	16,668	5,563	-----	36
Enameled.....	1912	933,966	69,583	1,951	31,056	33,451	43	2,924
	1913	682,462	47,070	1,242	15,880	24,666	71	5,644
Other kitchen utensils:								
Iron.....	1912	1,010,702	90,224	13,693	52,680	20,462	2,664	677
	1913	726,961	59,774	4,931	33,025	18,568	2,109	972
Enameled.....	1912	4,976,414	599,314	12,906	72,903	489,567	8,801	14,701
	1913	4,116,096	519,526	11,130	53,035	428,107	5,853	19,952
Coffee grinders.....	1912	31,879	5,357	2,869	419	1,968	57	44
	1913	66,249	6,581	3,296	1,365	1,751	34	136
Rat traps, nonmetallic.....	1912	7,474	1,485	1,139	48	282	-----	15
	1913	12,225	2,429	1,544	58	740	-----	88
HARNES AND CARRIAGE HARDWARE.								
Harness and parts.....	1912	-----	24,546	3,851	8,413	9,709	2,573	-----
	1913	-----	8,796	1,514	5,292	624	565	-----
Bridle bits.....	1912	27,681	8,160	6	4,918	1,073	1,271	89
	1913	31,526	8,151	103	5,972	1,696	369	-----

Articles.	Year.	Total weight.	Value.					
			Total.	United States.	United Kingdom.	Germany.	France.	Belgium.
HARNESS AND CARRIAGE HARDWARE—continued.								
Spurs:		<i>Pounds.</i>						
Iron and steel.....	1912	9,422	\$3,474	\$117	\$2,295	\$735	\$321	.....
	1913	14,518	4,886	.....	3,062	1,729	24	\$51
Other metals.....	1912	432	588	.....	243	345	.....	.....
	1913	556	674	.....	401	248	26	.....
Whips.....	1912	3,693	6,114	431	1,896	2,212	1,321	.....
	1913	4,646	7,694	420	3,054	2,817	1,309	4
Chains, hitching (also for dogs).....	1912	50,870	5,053	131	219	4,600	35	68
	1913	59,238	5,884	11	1,151	4,427	28	274
Axles, carriage.....	1912	145,000	12,150	1,100	530	3,600	5,600	1,320
	1913	133,000	133,000	1,300	2,400	3,000	3,300	1,400
Springs, carriage.....	1912	368,000	30,600	580	3,300	8,150	16,800	1,670
	1913	500,000	41,300	3,300	7,600	16,800	11,700	1,900
MISCELLANEOUS.								
Chains.....	1912	2,430,739	88,135	2,248	66,193	8,736	655	7,430
	1913	1,810,479	66,639	1,870	57,525	4,627	39	2,083
Sporting supplies.....	1912	38,284	24,029	5,227	13,016	4,228	1,073	474
	1913	34,006	31,698	1,486	23,027	3,162	3,597	162
Games.....	1912	12,579	4,147	349	1,184	1,569	785	74
	1913	13,571	3,991	69	894	1,706	1,095	70
Lamps:								
Iron and steel.....	1912	271,553	44,098	2,850	4,996	34,696	701	462
	1913	221,121	38,718	31,935	5,951	27,008	575	749
Other metals.....	1912	366,117	152,222	14,345	41,716	78,375	16,258	799
	1913	352,120	145,174	12,133	35,172	76,172	13,061	3,191
Nonmetallic.....	1912	441,255	28,813	248	908	27,262	16	266
	1913	308,168	22,402	494	887	20,442	408	130
Lanterns:								
Wrought iron.....	1912	4,691	1,166	6	813	261	89	.....
	1913	12,337	3,064	692	1,893	457	23	.....
Tin.....	1912	4,709	1,169	357	219	531	63	.....
	1913	5,123	1,772	251	215	775	19	13
Mining lamps.....	1912	7,187	1,786	2	1,493	291	.....	.....
	1913	18,615	4,315	7	4,308	.....	.....	.....
Burners, gas and oil.....	1912	23,602	11,810	392	2,348	8,642	.....	428
	1913	16,638	8,298	439	1,954	5,817	9	81
Hones.....	1912	4,158	688	136	118	408	18	9
	1913	4,399	728	311	37	361	15	4
Emery stones.....	1912	12,434	618	65	241	263	.....	1
	1913	24,052	1,194	259	457	281	98	.....
Sandpaper.....	1912	273,001	27,114	15,646	1,512	9,208	151	574
	1913	300,645	29,865	16,746	2,546	9,697	582	780
Paint brushes.....	1912	53,200	20,800	130	4,850	15,100	460	160
	1913	61,000	25,235	360	6,240	17,100	815	710
Sundry tools.....	1912	1,010,000	243,600	65,590	86,280	71,320	12,610	5,570
	1913	760,500	188,869	48,250	54,791	66,662	8,445	5,923
Casket trimmings:								
Iron and steel.....	1912	507	73	.....	.....	73	.....	.....
	1913	4,718	655	272	.....	382	.....	.....
Other metals.....	1912	1,374	392	392	.....	.....	.....	.....
	1913	3,982	1,095	998	98	.....	.....	.....
Gilt, or silver-plated.....	1912	1,927	638	638	.....	.....	.....	.....
	1913	1,609	5,340	5,012	102	289	.....	.....
Wreathes.....	1912	1,482	981	.....	183	258	7	.....
	1913	672	672	.....	.....	19	.....	.....
Grand total.....	1912	.....	4,236,194	1,112,727	1,265,541	1,585,825	131,885	139,400
	1913	.....	3,750,524	654,812	999,400	1,487,095	123,201	300,369

NOTE.—Imports from countries other than the five specifically shown totaled \$816 in 1912 and \$185,647 in 1913.

ARTICLES IMPORTED FROM ITALY.

Owing to the fact that the Italian emigration to the southern part of South America is commonly known to be great and the origin of immigration ordinarily has a marked effect on the origin of imports, a study of the hardware trade between Italy and Chile has been made. This study is separated from the general one because it is in itself

sufficient to be noted, but not of such importance as to make it desirable to include it in the general comparison between the various countries that practically control the situation.

The total Chilean importation during 1913 of tools, shelf stock, and builders' hardware, which are the principal items considered herein, was, very approximately, \$3,500,000—assumed to be the value at the foreign factory. Of this amount only \$9,000 worth was imported from Italy, many of the amounts being very small. This total is distributed among a number of articles, the principal ones being fiber scrubbing brushes. Of these, \$482 worth out of a total of \$11,574 are Italian, the United States selling \$650 of the same article and Germany being the principal source of supply.

Out of a total of \$21,000 worth of ordinary brooms Italy sells about \$1,200, the United States about \$9,400, and the remainder is divided principally between the United Kingdom and Germany. The total importation of cotton rope and cable is about \$152,000, of which Italy supplies about \$1,100 and the United States the surprisingly small amount of \$3,500. Of a total importation of \$36,000 of wire brushes Italy sells \$440, the United States \$40, and Germany about \$31,000, France and the United Kingdom coming next in order with small amounts.

Pábilo, or cotton string and wicking for candles, is an item of general importance, Chile having purchased in the year 1913 an amount valued at \$21,615, or 104,000 avoirdupois pounds, of which Italy sold \$300, the United States \$3,100, the United Kingdom \$11,000, and Germany the principal part of the remainder.

Piola, or clothes line, is the only remaining article commonly listed among hardware that attracts any attention in this connection. Out of a total of \$8,800 Italy sells \$3,200, the United States \$250, and the United Kingdom, Germany, and France supply the remainder. This is the only article among those listed in which Italy has the greatest share, and the last two named are the only ones in the hardware list in which Italy sells more than the United States.

The total importations from Italy to Chile during 1913 amounted to \$3,176,300, but the principal items were textiles and foodstuffs.

V. METHODS OF ENTERING MARKETS.

In the treatment of a subject such as that indicated above, one is very apt to err in attempting to set forth a general rule based on experience in connection with given conditions or articles, when that rule is not in any way applicable to other conditions or other articles. There are, however, only a certain number of different methods of entering any market, and it may simplify matters to enumerate them here and discuss them one by one.

The first method—undoubtedly the primary step that every manufacturer has taken when considering the export trade—is by correspondence. In the event that any interest in his product is developed he has the choice of handling the business through export commission houses (which, at times, are the real cause of the development of the manufacturer's interests), sending out traveling salesmen, using native houses as agencies, establishing resident American agents, or opening branch houses.

SOLICITING BUSINESS BY CORRESPONDENCE.

Before deciding on the adoption of any method it is probable that the producer will want to consider the cost. If he has never made any effort for export business and is practically unknown in the foreign field, he will probably select correspondence as the cheapest method of getting acquainted in the beginning. Even this method will of course cost something, and will probably require the employment or assignment of a clerk or export secretary for that duty. It would seem that the average cost to an average factory, provided there is assigned to the work a man who is conversant with the language of the territory in which business is sought and who is intelligent and has initiative, would be about as follows: Clerk hire (from \$1,200 to \$1,500 per year) may be estimated at \$1,350; literature, \$500; postage and stationery, \$500; samples, \$100; advertising in export and some foreign newspapers, \$200; purchase of textbooks and Government publications, and extra credit service, \$200; firm membership in some export association, \$150; total, \$3,000.

It does not seem improbable that an energetic export secretary should be able to present a knowledge of the firm's product to 6,000 possible purchasers during the year, and if that be so the average cost would be about 50 cents each. By this time, or when the manufacturers have a list of 1,000, or even 500 firms, who are really interested in the article, they may well consider the advisability of sending out a salesman if they have not done so before. If the selection of the export secretary has been a fortunate one, and he is familiar with the product of the factory, there would probably be no other man quite so well fitted to make the trip as he who has formed the correspondence acquaintance. He will know a great deal more about the clients than another could learn in a long time, and it may be noted here that, because of his potential value to his employer, his selection in the first place is a problem that even the president of the firm might well consider one of decided importance to him.

ESSENTIAL QUALIFICATIONS OF CLERKS AND SECRETARIES.

Strange as it may seem to many a mail clerk or young secretary, much of the early correspondence with a new prospect is often handled in a way that tends to alienate him for all time to come. One can not help thinking that a little money spent in selecting and training a clerk for foreign correspondence would go a long way toward getting enough orders to pay a large part of the traveler's first trip abroad. The writer feels constrained, in connection with this important question, to discuss briefly the selection of clerks for foreign trade.

Primarily, the person chosen must be careful. If a letter is intended for Santiago, Chile, it certainly should not be directed to Santiago, Cuba, nor to San Diego, Chile. This statement may seem unnecessary; but it is prompted by the receipt in actual correspondence of letters that have been so addressed, returned, and remailed. The clerk selected should not be content with a knowledge of arithmetic and typewriting, but should study geography and trade routes diligently; and he should never abandon that study, since the construction of new railway lines, the opening of ship canals, the

establishment of new steamship lines, and the changing of routes already established are going on all the time.

The clerk must also be polite. The manner in which he will handle correspondence is undoubtedly indicated by his mode of address and treatment of his fellow employees. If he is in the habit of addressing his business associates in a disrespectful way, he is not likely to treat the foreign merchant with the consideration to which he is entitled as a business man and a prospective customer.

PROBLEM OF SHORT-PAID POSTAGE.

The clerk selected should be familiar with postage rates and should see that the letters and advertising matter are fully prepaid. The subject of postage and the nonprepayment thereof has been discussed at such length in connection with export trade that it would appear almost presumptuous to add anything more: When letters are received at the office of the commercial attaché in Chile that have been mailed with insufficient postage, a blue slip is sent to the person or firm at fault, on which is printed the following statement:

SHORT-PAID POSTAGE.

Your attention is respectfully called to the fact that your communication to this office did not bear sufficient postage, and I take the liberty of pointing out the unfavorable impression this would have created had your communication been addressed to a foreign firm. Many short-paid letters are not accepted by the addressee and the sender loses the postage that has been paid as well as the stationery. In many cases he also gains the permanent displeasure of the foreign merchant.

ADVISABILITY OF SENDING CATALOGUES.

Besides the problem of postage there is the additional one, in some countries, of the entrance tax charged against books of every character, including catalogues and advertising matter. Fortunately, there is no such tax in Chile on ordinary catalogues, periodicals, or other publications. There is a tax of 15 cents per pound on diaries or small pocketbooks that have blank pages for writing and advertising matter on other pages. This fact is noted because some American firms send out advertisements of this kind. If the catalogues sent out are small and inexpensive, they may be inclosed in a sealed envelope and first-class postage paid on them with no great loss; but if the catalogue is expensive or large, there may at times be a question of the advisability of sending it unless the prospective customer has indicated his desire to have it. Even if the catalogue costs no more than 50 cents, it may at times be preferable to send out a first-class letter in advance saying, in the language of the country:

We will be pleased to send you our catalogue in the event that you indicate your desire to receive it. Will you kindly fill out the blanks on the inclosed card and mail it to us? If you import such material as we manufacture, we are sure that we can quote satisfactory prices, if quality be considered. It is our hope that such relations as we may establish with you shall continue for many years, and because of this we desire to start with the proper information.

Very truly, yours,

[Signed with pen and ink, not stamped nor printed],

Foreign Sales Secretary, or Sales Manager.

SM/S

The card headings might be as follows:

May we correspond with you in English? If not, what languages may be used?
 Should we send you our catalogue, which weighs — kilos?
 Do you import direct? If not, through whom do you import?
 Through what bank do you prefer to do business?
 (Please write your name and permanent address carefully.)

Name.....
 Street and number..... Post-office box.....
 City..... State..... Country.....

The suggestive forms just mentioned would, of course, be circulars, and in the use of all circulars the writer thinks that very special care should be used in the selection of the color and type. If the address is written in a shade of ink that varies ever so slightly from the shade used in the body of the communication, it is obviously a circular and may be treated as such. It is naturally the hope of all advertisers to use a ribbon of exactly the same color as the printed matter. If this can be done, and if the position of the address is properly selected for the use of window envelopes, the work involved in getting out the mail is greatly reduced.

CONCILIATION OF CUSTOMERS BY PERSONAL SIGNATURES.

The sales manager may not be able to sign personally all the letters that go out of the office, but it does not seem impossible for him to sign 10 a day devoted solely to the purpose of getting new customers. This means 3,000 per year, and it is a question whether the average firm, even though it be a big one, really attempts to get in touch with 3,000 new customers each year in foreign countries. It would surely seem preferable for the sales manager to devote a few minutes each day to the signing of letters rather than run the risk of offending any one of his prospective customers. If he can not sign all the letters, it might be worth while to permit the secretary to sign his own name over the title of "Foreign sales secretary," or something similar. Most sales managers will admit that it is not desirable that other persons should sign their names, and it is, of course, preferable that whoever does sign should at least have a title that will make a satisfactory appearance. In view of the usual attitude of foreign purchasers, the point seems rather an important one, and the writer would advise the personal signing of such communications.

In this connection an example may be interesting. The writer has on his desk a letter from a manufacturer requesting that an agent or representative be selected for the purpose of introducing goods. There is nothing on the communication to indicate that it was dictated by any person in authority, and the name of the manager is put on with a rubber stamp. The writer is reasonably busy. He tries to answer important mail before attending to that of less moment. If the sender of the letter just mentioned takes so little interest in the subject of securing a foreign representative as to delegate the correspondence to an employee so unimportant that he can not even sign his own name to the letter, why should the recipient of the communication consider it urgent? In due time the letter

will be answered. It would have been answered at once had time been available, but had it been addressed to private individuals who are busy in an attempt to sell goods, would it be answered at all?

CORRESPONDENCE FACILITATES WORK OF SALESMEN.

It is doubtful whether a large export trade can be built up by correspondence alone, but there is always the obvious advantage of having a list of merchants who have indicated their interest in the product of the factory, when the time comes to decide between sending out a salesman or turning the business over to an expert house. There is no doubt that a salesman can cover his territory with much greater ease if, when he arrives in a strange city, he has a list of 10 or 20 people on whom he can call and say: "I am the traveling salesman of Adze & Co., and they have advised me of the interest you have shown in their product and have asked me to call on you." In the event that the business is turned over to an export house having representation in the city, the latter is not handicapped by being compelled to introduce an unknown article. Besides these psychological advantages, really tangible gains are often apparent, and it is not improbable that sufficient sales will be consummated to pay for a reasonable effort in the use of correspondence as an introduction. The writer believes, however, that the correspondence method is the most difficult of all for the accomplishment of definite results and that, to pay, it must be handled with infinite care and attention to detail.

ASCERTAINING ACCEPTABLE LANGUAGE—IMPORTANCE OF COURTESY.

The question of language may be referred to here. Some foreign correspondents write in English because they desire to practice it, and feel aggrieved if the reply is in some other tongue, notwithstanding the fact that they may misspell words and express themselves with difficulty. Others use English because they think Americans can not understand the language used at the home of the writer. It can do no harm, in the first letter, to ask the prospective customer whether one may use English, or, if not, what language will be considered most acceptable.

If one writes in English it is necessary to be polite, but not effusive. If the same care were used in writing to a prospective customer as in applying for a position, it is not unlikely that more orders would come in. The Spanish-speaking person, almost universally, if writing in his own tongue, will sign a letter "Su muy atento y S. S.", which means "Your very attentive and sure (or dependable) servant." He is not your servant and certainly has no intention of becoming so, but he uses this courteous expression and he expects, with reason, that similar courtesies will be shown to him.

NECESSITY OF COMPLETE AND DETAILED ANSWERS.

In the event that an inquiry is obtained, the answer should be as complete as a first-class salesman could make it if he were on the ground. From Valparaiso to New York, at the present time, is about three weeks. This means about seven to eight weeks for a reply.

The answer arrives after the inquirer has been thinking about many other things, and he may even have mislaid his copy of the inquiry. He would undoubtedly prefer to receive the reply in the language in which he wrote, and at length. If he does not get all the information he wants he may never write again, and if he does get it all, he may place the order. If a salesman were in his store trying to make the sale, he would not hesitate to spend an hour to get the order, and the services of the salesman may cost from \$300 to \$500 a month, if his expenses and lost time be included. Why should the salesman in the home office hesitate about giving the inquiry a little time? Is it because he thinks he can make the sale more easily at a distance of five thousand miles than at five feet? Obviously not.

CORRESPONDENCE IN CONJUNCTION WITH TRAVELERS.

Selling by correspondence has been considered, thus far, simply as the means of introducing the merchandise and the maker. Let us suppose now that a salesman has been selected and sent abroad. He can not be everywhere at once. Possibly he can not go to certain towns at all. In Chile, as in other countries, there are important centers where the import trade tends to concentrate because of superior port facilities or other factors, and often the salesman is compelled to devote his efforts to those cities for a limited length of time and then go away. However, many articles are sold in the smaller towns that he can not conveniently reach. Since his desire is to sell the maximum amount he must write to those smaller towns and introduce his goods and himself, possibly pointing out the fact that he can not make a visit, but is arranging for some large importer to supply the needs of the interior, and that the smaller merchant should communicate with the latter. When the salesman goes away the rest of the work must be done by correspondence. It is evident, therefore, that there must always be a certain amount of this. It is, in itself, undoubtedly defective as a means of getting all the procurable business, but it can not justifiably be overlooked by anybody, and the correspondence department will inevitably increase as the business expands.

Most manufacturers would hesitate to send out a salesman without having first made a thorough campaign by correspondence, at least with the leading merchants and some of the principal users. It may be noted in passing that a manufacturer of building hardware can often accomplish much by writing to the leading architects, saying, "We would be glad to have an opportunity to show you the advantages of our product. We are represented in your city by J—— G——, Seventh Street and ——." In Chile, as in much of the Latin world, many articles are used in this line that are practically unknown in the United States, and the American manufacturers could easily duplicate many that are used extensively.¹

¹ For the benefit of the manufacturers of hardware and tools used in connection with the work of architects and building contractors, lists have been secured giving the names and addresses of the leading men in Chile in those lines. The list of contractors having authority to execute public works of any character for the Government of Chile is in the form of a book. It is mentioned among the publications on page 176 of the Appendix, where an indication is given as to the way in which it may be examined by interested persons. The list of the members of the Chilean National Society of Architects, as well as a number of other men prominent in the profession, may be obtained upon application to the Bureau of Foreign and Domestic Commerce or its district or cooperative offices. Inquirers should refer to file No. 948.

VALUE OF CAREFUL ADVERTISING.

At the time of making the correspondence campaign, there is no doubt that judicious advertising should be carried on in periodicals that reach the foreign buyers. It does not seem necessary to the writer (though it might to certain manufacturers) that the space should be great, nor the advertising of a pretentious character. Neither does it seem desirable to advertise trade-marks if these are not protected in the countries reached by the periodicals. It is not unusual for some unscrupulous person in foreign lands to take advantage of an established trade-mark and register it in his own name for use with any article that he may desire to make and sell. In registering the trade-marks, if they be letters, words, or names, it is well to register the mark itself, then the mirror mark (the reflection of the mark in a looking-glass), the name or word spelled backward, and the name, word, or initials upside down. The proper methods to pursue in obtaining the registration of the marks in any foreign country may be learned from the publications of the Bureau of Foreign and Domestic Commerce. Specific directions with reference to Chile are given on page 59 of the present book.

EXPORT COMMISSION HOUSES.

The next step after the exhaustion of the possibilities by correspondence—if these ever are exhausted—depends very much on the amount of business developed, the class of goods put out by the manufacturer, and the arrangements he is able to make with distributors (either local firms or export commission houses) for handling his product.

Some persons criticize commission houses. It may be said in this connection, however, that so far as the west coast of South America is concerned, it seems probable that had it not been for the establishment and maintenance of several houses doing a commission and jobbing business, buying and selling all sorts of products at their own risk and financing the operations, the exports of the United States to that part of the world would have been a comparatively unimportant item. Much of the criticism of commission houses comes from the fact that in certain parts of the world (this has no reference to any of the organizations just mentioned) houses of this character are really swamped with requests from manufacturers to represent them in foreign fields. The result is that there is a great competition among the manufacturers, not for the healthy purpose of competing with European manufacturers in a foreign field, but for the purpose of offering their goods at as low a price as possible in order that the exporter's profit may be greater. Naturally, the exporter¹ will buy from the firm that offers its goods at the lowest price, and the efforts of the other American manufacturers are defeated. No one could have the temerity to criticize an export house for buying as cheaply as possible and selling as dearly as possible. It may be said that the practice is universal and is the fundamental principle of com-

¹The word "exporter," as used in this discussion, should ordinarily be understood in the sense of "export commission house," rather than that of a manufacturer engaged in foreign trade. Similarly, the word "importer" is often employed to designate the Chilean establishment of such a commission house.

merce. But in the event that a certain manufacturer thinks he is being represented by the export house, and he can not sell goods because in reality his supposed representative is selling a competing line at a lower price, then that manufacturer may complain that he has not been fairly treated. Obviously he has not, if the export house is really his agent, but many manufacturers merely think they are being represented by a foreign house when actually they are not.

MISUNDERSTANDING CONCERNING REPRESENTATION.

Not long ago an acquaintance of the writer desired to purchase a certain well-known article manufactured in Europe. He wrote to the manufacturer and asked for quotations, but was advised to consult the latter's local representative, whose name and address were given. The client requested the concern mentioned to quote prices, and was informed that the supposed representative had never heard of the article nor the manufacturer. After insisting, and showing the correspondence, the client was asked to go to the basement with the office boy and look at the catalogue file. He found the catalogue, and one of the clerks then looked through the files and found a letter from the manufacturer of several years back, in which he mentioned sending the catalogues and stated that he was glad to be able to give the firm the representation. What had happened? Probably the export house had indicated its interest in the article and had requested information, stating that, at the time, it might be able to dispose of some of the product to advantage. The manufacturer, eager to secure foreign business, assumed wrongly that he had received an offer of permanent representation, and left the matter entirely in the hands of the supposed representative. There was no apparent lack of good faith on the part of anybody. Undoubtedly the same exporter had asked bids from more than one factory in the same line, and it is not impossible that more than one factory has the idea that it is being represented. Reliable reports are received by the writer from time to time that certain firms in this or that country or city are the "representatives" of 200 or 500, and in one case of 800, manufacturers. In many cases several of the factories are competing, either in their own country or in foreign countries. The advantage of being represented by a person or firm that at the same time represents three or four competitors is not obvious, though it might, to be sure, eliminate competition for the representative.

The writer knows of very few export houses that really *represent*. He knows of many that buy and sell, and he has never known a firm of consequence to say it represents when it does not. The difficulty seems to be the assumption on the part of the manufacturer that he is represented merely because he is asked to furnish prices for the purpose of resale or the filling of foreign orders. He may not in all cases think that he is represented, but he is usually so anxious to be that he will force his attentions on the export house, will not give up hope, and will do absolutely nothing that might in any way interfere with the commission firm that has placed an order with him. In the event that no orders reappear, he is likely to think that there is no market.

EXPORT HOUSES THAT DECLINE TO "REPRESENT."

The writer has at times attempted to interest certain firms in taking on the representation of manufacturers located in the United States. He has been informed that the houses in Chile could not do this because they had too many representations already or, in some cases, preferred not to represent anybody, but to buy and sell, handling the credits in Chile themselves. Before one criticizes such firms it would seem proper to analyze their motives in accepting, or appearing to accept, so many agencies. In many cases they do not intend to act as agents, except when a buyer presents himself to them, and do not pretend to solicit orders. Often they do desire to have as many catalogues and price lists as possible, in order to make a selection of the merchandise and increase their profits to the utmost. They will buy and then put the price at a competitive figure and sell. The great difficulty among the manufacturers of the United States seems to be to learn which are commission houses or brokers, which are importers and exporters handling direct sales, and which are merely selling agents working on a salary or commission.

FUNCTION OF COMMISSION HOUSES IN RELATION TO CREDITS.

During the past few years American manufacturers have shown an increasing willingness to extend their trade on the west coast of South America by sending to that part of the continent (at relatively great expense to themselves, when one considers the amount of business available) representatives who, at the moment of what appeared to be the brightest prospects, have been exceedingly embarrassed by their inability to make the necessary arrangements to carry their negotiations to a satisfactory conclusion.

It may fairly be assumed that almost any manufacturer is desirous of extending his business in Chile, but suppose he does not know the client and has no means for the collection of the account? He is then forced to do one of two things: Either (1) ask for payment against shipping documents or (2) seek the assistance of some local commercial house that will assume the financial risk—in other words, turn his business over to an agent after he has received the order. This last is done very often, and it constitutes the means by which much American business has been closed. This fact surely does not indicate that the position filled by the agent, commission house, or exporter—whatever he may be termed—is an unnecessary adjunct to American commerce. So long as the American manufacturer can not carry the risk, or will not give customary credit, or is unable to discount his bills or sell his notes from the South American west coast, the export house will inevitably thrive and fill a want. Its elimination would certainly be keenly felt until some other method of financing sales could be carried out.

EFFORTS TO SECURE AN EFFECTIVE SELLING FORCE.

After the manufacturer has obtained one order and turned it over to the new agent, he sometimes thinks that he is then permanently represented and that his interests will be taken care of in the future. He may have made an agreement providing that all his collections

are to be so handled and that any orders for his goods that may be placed with the commission house will be sent direct to him in the name of the latter. But that does not by any means imply that he is represented by a selling force unless he has made a special agreement to that effect. Much time may elapse and no more orders come; finally the manufacturer may give up all hope and tell his associates that he can see no good in spending any more money in the west-coast territory. In this attitude he may or may not be justified. If the foreign representative is a commission house purely, making only a desultory effort to sell the product and acting at the same time for many other manufacturers in similar or competing lines, it is quite clear that the manufacturer is not obtaining all that the foreign field has to offer him.

METHODS AVAILABLE FOR SMALL MANUFACTURER.

There is a field for the commission houses, and if the American manufacturer does such a small business that he can not pay the expenses of a special agent, he may have to cling to mutual agencies, or the export commission house and correspondence, as the only effective means of securing foreign trade. If he is not prepared to finance sales, he may correspond as much as circumstances will permit, stating in his letters that his representatives are a certain named house in the city nearest to the person addressed—carrying, in addition, such advertising as may be deemed proper. By such a course he can assist in bringing some business to the export house for his account, the export house meanwhile establishing and maintaining the personal relations without which, as every manufacturer will agree, large sales will be exceedingly difficult. If, however, he later finds that the house in question is doing a similar work for other factories and that a prospective customer is given a choice between his goods and those of a competitor who has made no effort to advance his sales (preferring, perhaps, to spend the same amount in giving special discounts to the export house), the manufacturer is likely to say that he no longer wants to do business with that house. Under such circumstances he probably does not want to deal through a commission house at all.

He may attempt, if the possible sales warrant, to send out a salesman to represent him alone; but even then, if he does not know the country well enough to feel safe in the matter of credits, he may ask the bigger commercial houses to act, as above noted, in the collections or the financing of sales.

ATTITUDE OF CHILEAN PURCHASERS.

It is not surprising that North American manufacturers should hesitate before shipping goods to an unknown client in South America without having their money assured. That being clearly understood, it is not difficult to appreciate the feeling of the South American client who does not care to send his money to unknown firms in North America without knowing that he is to receive exactly what he ordered. By "unknown firms" is meant firms unknown to the particular manufacturer or client. The fact that A, B, C & Co., of Atlantic, Iowa, have a capital of \$1,000,000, that the firm is composed

of men of high standing, and that it makes farm wagons, ordinarily means something to the purchaser in Arizona or Minnesota, but it does not mean a great deal to an Italian merchant doing business in Chile. Therefore, if the Iowa manufacturer sends catalogues and advertising matter to the Chilean merchant, the latter will not feel as free to place an order as he would if he could talk to some responsible local person. He might order direct, but to do so he would have to be of a trustful nature. If no local agent were available he would probably arrange to make his purchase through one of the large local houses having an office in the United States, asking them to buy the article, guarantee its arrival in good condition, and finance the transaction. A commission would of course be charged, and in some cases such an additional profit might be added as to preclude any further purchases of that same article unless it were impossible to duplicate it elsewhere. Should any part be broken, the house through whom the purchase was made would be unlikely to have spare parts in stock, and this would mean months of delay. To these difficulties, however, all manufacturers are subject who do not have foreign representatives. If the goods are handled by certain firms, however, such unfortunate incidents are not very likely to occur, and in that case everyone interested is probably glad that the houses acting as intermediaries are available. Since so much business is handled in this manner, it would seem that houses of this character are necessary and fill a well-defined place in business. There is certainly an excellent field for them on the South American west coast; they buy in odd lots, group purchases, handle shipments economically, have excellent credit, and accomplish much. The very nature of their widely diversified business, however, makes it extremely difficult for them to devote their best efforts to, let us say, a detailed study of the hardware field. But it must be remembered that a number of them have very efficient organizations to buy and sell, are in very close touch with the local opportunities, and are well fitted to handle American goods, to assist in placing orders, and to finance the sales made.

TRAVELING SALESMEN.

After the manufacturer has done all that is apparently possible in building up his trade by correspondence, and has succeeded in placing enough orders with individual buyers or through commission houses to assure himself that his product has a field in the new territory, he is prepared to consider the advisability of sending out a traveling representative, not for the purpose of replacing the other methods used up to this point but of continuing their development in a closer and more thorough manner. No one, of course, would question the need of continued correspondence, but certain manufacturers feel that, when the salesmen are sent, the direct sales should begin and the big local merchant or commission house be eliminated. It is true that much of the participation of forwarding agents can be eliminated to advantage at such a time, but it is probably true to a greater extent that much business will be built up for the forwarding agents by the introduction of the firm's goods to clients who are not prepared to meet the terms of credit fixed by the factory or who can not buy in sufficient quantity from one maker to reduce shipping expenses to a reasonable figure.

The elimination of the Chilean importer, the American exporter, or the big commission house is, in the writer's opinion, neither desirable nor economical, especially for the relatively small manufacturer. Nor do the commission houses with branches in Chile object to the appearance of the salesman of the manufacturer. As a proof of this, there is submitted the following extract from a statement made before the Federal Trade Commission of the United States in the summer of 1915:

Joseph P. Grace, president W. R. Grace & Co., New York: I believe the first and most important move in capturing South American trade should be to make it possible to have each of the best selling articles in this country represented in South America by a traveling specialist who could demonstrate the article and make the first sales. Such trips are fairly expensive, and a single manufacturer is not always justified in going to the expense of sending out such an expert.

This statement is also borne out by Chilean managers of the same company. The local houses, then, are glad to see the factories' experts and are generally ready to assist them in any way possible. The big commission concerns know that manufacturing is not banking, that credits, short or long, are usually required by retailers, and that they themselves are prepared to finance many sales locally that could not be made without their assistance. Also, the larger houses are generally interested in steamship service and are glad to do anything within reason to increase the tonnage on their lines from the United States to Chile, since there is always more space available going south than north. If the salesman handles a line that these houses represent (in a banking sense, even though not otherwise), other profitable business comes to them. They are sometimes willing to take on the representation of a line provided the maker will exploit it for them, when they would not be willing to do so otherwise.

DOING BUSINESS DIRECT—ADVANTAGE OF PERSONAL CONTACT.

In the event that the manufacturer desires to do business direct and can handle the credit problem without the intervention of the big houses, there is no doubt concerning the wisdom of sending a traveling representative to study and develop the market for the factory, if the prospective business warrants. Obviously such a man must be selected with care, and his power must be greater than that of a domestic salesman. If he is to sign contracts for import orders he must have a power of attorney to do so, or else sell them in his own name rather than that of the factory. If he holds a power of attorney he should have it registered through the Chilean ambassador in Washington.

The traveling salesman brings to all business the element that seems so essential in the accomplishment of results, namely, personal contact. He is ordinarily the only man connected with the factory whom the retail, or jobbing, client sees, and his appearance, personality, and character will form in the mind of the buyer the mental picture of the whole organization. As the traveler makes friends with the customers, so will the firm; and as he creates unpleasant sentiments, so will the firm also. In many books and studies of foreign trade it is pointed out that the salesman must possess certain specified qualifications. It can not be doubted that he should speak

the language, but the points of primary importance are that he should know his business and be of a pleasing personality. If he meets these requirements satisfactorily, his employer should then take account of his ability to speak the language of the country, which in Chile and Bolivia is Spanish. He will unquestionably be handicapped without a knowledge of the language, since he can talk business in that case only through an interpreter. He will feel lost among the merchants whom he approaches if he can not understand their conversation. The writer would hesitate a long time before recommending a man as a salesman who could not speak the language of his customers, but if he were forced to choose between an accomplished linguist who was imperfectly familiar with the business and a man who had successful experience as a salesman but could not speak Spanish, it is thought that the man with the selling experience would get the position. It would, of course, be highly advisable, if not imperative, for the latter to study the language and ultimately learn it.

The representative of the house should be an educated man, able to conduct himself properly at all times. He is seldom called upon to wear evening clothes, but he can rarely make a trip through South America and not feel the need of a dinner coat. His business is not necessarily with society people, but rather with men at their places of business and clubs. These men, however, will be the heads of importing houses, not proprietors of the corner grocery. He will have to dress for dinner on any of the European boats, at some of the hotels, and occasionally at the clubs or theaters where many men go in the evening. In each city he is reducing a year's acquaintance to a few days' time, and it is well that he be seen at his best.

The traveling salesman will always find the merchants as ready to talk business as in the United States. Merchants have no time to waste in Chile and Bolivia. To those familiar with conditions such a statement may seem superfluous; the fact is mentioned here merely because of the absurd notions that have crept into print to the effect that one had to spend days in social diversions with a South American merchant before the subject of tacks or hack saws could be introduced.

CHARACTERISTICS TO BE CULTIVATED OR AVOIDED.

The traveler should be a thoroughly competent man in every phase of the business. He must supply the factory with the order and with the credit information, and he must do it in a country where his experience is necessarily limited and his time is short. If he is not worth \$3,000 a year and his necessary expenses, the factory may well hesitate before sending him out. There are many salesmen in Chile who receive \$3,600 per year and expenses and others (in a reduced number) who receive more.

It has been noted by the writer that the successful salesmen are not the blustering kind, nor those using intemperate language, nor those cherishing a too determined conviction as to the superiority of American cities and American ways. And the fact may be emphasized here that getting business is not only as difficult in Chile and Bolivia as it is in Boston or Butte—there are the added difficulties of a lack of understanding in many details; unsatisfactory credit

information; differences in language, transportation facilities, shipping, insurance, commercial laws, and various other matters; together with the inability of the salesman to see the head of the office very often and his consequent dependence on his own judgment in most cases. The undertaking is, indeed, attended with so many troublesome features that many manufacturers hesitate to try it, failing to see how they can make any money by sending out the traveler.

EXPENSES ORDINARILY INCURRED BY TRAVELERS.

If a traveler comes to Chile his fare will be about \$225 from New York to Valparaiso. His board and room at a hotel will cost from \$4.50 to \$6 per day. Laundry work is about 50 per cent higher than in the United States, and the destruction in connection with it is at least 100 per cent higher. Pressing a suit or an overcoat costs from \$1.25 to \$2. Lunch at a club, or at the better restaurants, costs from \$1 to \$1.50 and dinner perhaps \$0.25 more. If one has guests, it is the almost universal custom to serve wine, either with lunch or dinner. It is thought that \$225 per month should cover the expenses of living and of a reasonable amount of entertaining in a modest way. It would not cover transportation, cables, stenographic help, handling sample baggage, office rent, sample room, or any personal amusements. Railway passenger rates are low, but baggage is extra, as well as parlor seats.

The above information refers to Chile. One salesman who has lately made a trip through Bolivia informed the writer that his total expenses, including transportation, hotel, and baggage (about 200 pounds), was approximately \$250 per month, exclusive of special taxes. Traveling in Bolivia is a little more expensive than in Chile, but, on the other hand, there are more people to see in Chile, the standard of living is somewhat higher, the cost of entertaining would probably be more, and various incidental expenses would be greater. If very much baggage is carried, it probably would be well to figure about \$12 per day for covering the two countries in a thorough manner, without too long and continuous trips.

NOTIFICATION OF CUSTOMERS—RETENTION OF SALESMEN.

Before the traveler starts he should write ahead and notify the persons whom he plans to see as to the approximate date he will arrive, where he will stop, and any other interesting facts in connection with his trip. He should indicate to them his belief that they are interested in his movements.

If it is possible to have the same man cover the territory year after year the result should be beneficial, for there is much to be learned about the South American countries; the second trip is apt to be more satisfactory than the first, and the third even better. One Chilean merchant informed the writer that certain European salesmen came to see him every year and he always looked forward to their visits with pleasure. He felt that they were old friends. But he added that he never became acquainted with American salesmen, nor saw them a second time, because they never came back. Of course, he was partly wrong in this, because many do come back and

continue to return for years; but his experience had been different, and he resented the necessity of discussing his business with a new man every year.

Some manufacturers keep a traveling salesman almost continuously on the road, and some European houses keep men in Chile all the time. Among the American resident agents in lines other than hardware, it is not unusual to turn the orders over to the large business houses for financing. The manufacturers represented have a business big enough to pay the man on the ground, but prefer to avoid the chance of loss by asking some one else to finance the sale. Others take advantage of the opportunity to avoid credit questions by working through the big local houses—sending out a traveler to call on these, and then on the trade, thus helping the local importer to get business. It is not unusual for some of the very largest of American manufacturers to handle their business in one of the two ways just mentioned, and certain advantages are obvious. At the same time they carry on a correspondence campaign, or at least supply the local house with all the advertising matter it can use to advantage. But they keep their own salesmen, who travel or not, as necessity demands. There are also a large number of hardware manufacturers who do a great deal of selling through New York forwarding and commission agents; while in general lines there are so many American manufacturers who select their clients with care, sell direct, and give customary credits, that proof is afforded that one can do business in that way to a reasonable extent.

METHODS OF PROCEDURE—THE LOCAL AGENT.

The best thing for a salesman to do, in order to accomplish the maximum results, depends largely on circumstances, such as the total sales possible, the ability of the firm to handle the business direct, its willingness to hand the orders over to an agent after getting them, and many other details. If the salesman can not remain all the year, and the firm desires to sell direct (keeping the business in its own hands and not dealing through the large local importers), the work of the traveling salesman may be supplemented by the assistance of a local agent, who will call on all the small dealers, combine orders if necessary for the reduction of freights, and generally act as a forwarding agent for the particular factory involved. If the orders are large enough, they will of course be shipped separately.

Such a local agent will probably know his people well, will be on the ground if anything goes wrong, and will watch collections, settle disputes, and take repeat orders on a commission basis. When the salesman makes his visit the local agent can take him around and introduce him to all the clients new and old, tell him the local conditions, make suggestions for the introduction of new articles, and afford him a fund of information that he might not be able to get otherwise. It is not necessary that any money be paid to such an agent by the clients. That can all be done through the banks, but the banks will tell an authorized agent whether the accounts are settled or not.

If he is working on a commission, the local agent will probably scour the market to sell the goods and do everything possible to increase the business. He should of course be entitled to consideration, and common justice should forbid his being deprived of the

business after he has worked it up. However, the idea of giving such a person an exclusive agency for a period of years does not appeal very forcibly to the writer, unless the agreement carries a clause to the effect that sales must be so much each year. He should be supplied with such literature as the factory sends out, and if the factory gives away anything it should be done through him. If it is only a calendar, a blotter, or a picture, he would probably rather give it to the clients personally than have it sent direct, because it helps him to make friends.

SECURING NATIVE HOUSES AS AGENTS.

It is obvious that the stronger the local salesman is, the better the results that will be obtained. And the suggestion is therefore likely to occur that it may be preferable to secure native houses as agents. The native house may be stronger financially than the local agent, who is unattached and acting rather as an employee; but, on the other hand, the established houses may have so many lines that the incentive to hunt for business would not be so strong as with the local agent. Before manufacturers decide to be represented by the native house, they will of course consider carefully what they expect the house to do for them. Is it the purpose to ask the local firm to assume the financial risk—that is, to handle the credits—merely because they import? If that is the idea, any argument for or against the American export house would apply to them, and there would be in addition the disadvantage of being represented by a foreign import house with no North American branch, rather than by a North American house with a South American branch. In most cases the manufacturers confronted by such an alternative would naturally select the American export house.

There is, however, another important question in this connection. Does the North American house with the South American branch really represent the American manufacturer, and if not, would the native house do so? If the export house frankly states that it is buying and selling but does not represent, while the manufacturer desires representation and trade extension, he would probably choose the native house. By native house the writer means simply a house established in Chile or Bolivia, without reference to the nationality of the individual or partners.

If the native house sells at retail, it may not be desirable nor advantageous for them to act. They certainly can not sell the same article as their clients in the same market, or their clients will seek some other source of supply. If the manufacturer desires that he be represented by a native importer, he must bear in mind that the native importer will have to take certain measures to sell the goods. If he employs a man to do it, that man will receive a salary or a commission and will be doing to a less degree just what the local agent would be supposed to do. The latter may not do as much, since the native house will attend to credit data and collections; but, even so, the use of the native house seems but a step in advance beyond the employment of the local agent. Both perform more or less the same function, except that the house has a greater responsibility in collections, and one would expect to pay it for the assumption of this risk. The local house would have to be a large one with many branches, or one would have to be selected in each important city.

POSSIBILITY OF LOSING CLIENTS.

It would seem, even if a traveling salesman is sent out and a reasonable business done, that there is grave danger that the clients will not be held unless something be done to keep in constant touch with them. The export house has been seen to fill an important position, though rather as jobbers than as representatives. Such houses are often not interested in a given line of hardware, because of its leaving them so small a profit that they could not afford to devote any time to it; or they might simply decline to take on more work. Some of the large houses in Chile are very much engrossed with the purchase and sale of nitrates, wheat, copper, and many other products that yield great profits because of the big business done. They do not feel that they can give the requisite attention to the details of small business, although an order will be booked if it comes in. In such a case arrangements may be made with the native house and practically the same results obtained, though to a less satisfactory degree. In either case it is well to have the resident salesman who is interested in the particular line. If one has in mind any of our fairly large hardware manufacturers, it may be said that the salesman will have all he can do to keep in touch with the trade, whether he be on the pay roll of the native house or the manufacturer or on a commission basis.

RESIDENT AMERICAN AGENTS.

Any of the methods outlined above will, of course, bring results varying with the circumstances of each separate case. These results might be satisfactory if business is not great enough to warrant the consideration of a branch or of a resident American salesman. The resident American salesman may reasonably be expected to do more than the traveling salesman, and probably more than the local Chilean salesman, since he will appreciate the point of view of the factory and the trade. When he sells hardware he must sell it from a catalogue or from a sample, because no man can adequately describe it; the resident agent, let us emphasize, should by all means have samples. He should have samples of everything that the market consumes in reasonable quantities; he should have his own establishment rented by the year; and when he has an opportunity he should take the retailer through the place and show him everything the factory makes, either from samples or from catalogues. The samples might well be arranged on display, each article having a card on it saying, for example, "A. B. C. & Co., shovel 2, catalogue No. 17, packed so many in a case, weighing so many kilos, import duty so much," and any other information desirable.

In Santiago alone such a resident agent would be kept very busy, and the same might be said of Valparaiso. He would be able to attend to both cities from one storeroom, but he could not carry his stocks about. It would be easier to bring the merchant from one place to the other. But he could carry a reasonable number of the samples to the south or the north. There are 3,500,000 people in Chile, and 1,000,000 of them are in Valparaiso, Santiago, or along the way between the two cities. Antofagasta is a large town in the north, and fairly large towns are numerous in the south. The field of endeavor that is open to any one, let us say, of our 10 largest hardware manufacturers or distributors is about \$2,000,000 worth of busi-

ness. It is divided among many firms at the present time, and probably always will be; but if the market is carefully worked it is thought that such an establishment might do a business of \$150,000 per year, without curtailing the sales of other American manufacturers. That is, the business could largely be obtained from new sources. This opinion is based on the fact that three firms alone do that amount of business in Santiago, and they are not the largest concerns, though in the first rank.

VOLUME OF TRADE—DIFFICULTY IN GETTING AMERICAN GOODS.

If all bolts and screws intended especially for railways (including track bolts) and all enameled ware be eliminated from consideration among the imports, the items considered in this report would amount to about \$2,500,000, of which the United States sells about 28 per cent. If we include the items first mentioned, the United States sells about 21 per cent. In making an estimate of a possible increase the smaller sum is taken.

The amount of hardware sold in the Valparaiso-Santiago district is about 40 per cent of the total business in Chile, or, perhaps, a million dollars. Local merchants say that it would be possible to double the American business. It has been conservatively estimated by the writer that the business could be increased, by a reasonable effort, at least \$150,000 per year.

If the American manufacturers could and would compete in enamel ware, the sales in that line might well amount to 50 per cent of their total hardware business, since more than \$500,000 worth of such ware is annually imported into Chile. The local merchants say that to get American goods one has to go after them as though asking a favor, while the European manufacturers make it a point to come to the merchant. The complaint against the Americans is also made against the French, but the latter are represented in Chile by a reasonably large colony and a number of retail dealers, while the writer has yet to find a single American retail store in this line.

FACTORS GOVERNING EFFECTIVENESS OF RESIDENT AGENTS.

In the event that only one American house established a resident agent, the latter would probably get a good deal of business away from other American firms as well as from European competitors. Of course, all the firms that now get a fair amount of their orders through forwarding agents could not afford to come to Chile individually. It is not impossible, however, that organizations dealing in certain lines might do their business through one resident American agent, but there would arise, then, the old problem of combined representation. It seems to be rare for a combination of manufacturers to get equal results from a traveler or an agent, and combinations of this character are sometimes not of long duration. Any strong effort made for the Chilean trade by means of a resident agent carrying a full line of samples, and perhaps a small stock of the most vigorously competing articles (such as screws, shovels, and chisels), must be made by a relatively large organization. When so made, it is apt to drive out the smaller American firms unless they can go to a considerable expense to hold the trade they have obtained.

The object of this study is, of course, not to benefit one American manufacturer at the expense of another, but rather to develop American trade as a whole; and from that point of view the most satisfactory step—the one most likely to produce results—would seem to be the establishment of resident agents, whether Americans or men of the country. The final accomplishment would seem to be more secure if the agent is of the nationality of the factory. The representative of an American institution should be essentially and obviously an American. The few so-called resident hardware agents in Chile are really representatives of certain forwarding and purchasing agents in the United States, rather than the agents of factories.

Neither they nor their associates are likely to have enough capital to open retail stores, either directly or by assisting some American, through advice and general supervision, so to establish himself. This might be considered by resident agents, however, as one method of increasing their trade. It is not thought that this would be desirable except in sections of the territory where existing merchants make their purchases elsewhere. There is certainly little to be gained by a manufacturer's taking part in an effort to drive out his present clients for the benefit of others whose future is not assured.

It is by no means suggested that American manufacturers put up capital or employ men to open retail stores, but if a manufacturer can not sell his goods in a given section because the merchants have close alliances with competing manufacturers, it might be convenient to select a person who is known to be competent and offer him certain credit facilities in order that he might become firmly established in the local field. In the event that the representative devotes most of his time to the Santiago-Valparaiso district, he might secure agents or establish supporting retail houses in isolated portions of the country where it would not pay him (or would be inconvenient for him) to go. There are relatively few cities in Chile and Bolivia where a hardware store is possible. Outside of the principal cities (and in some cases even in such cities) the dealer is very apt to carry farm implements, machinery, furniture, and groceries as well. In the small towns particularly, the retail establishment selling hardware alone could hardly support itself.

EMPLOYMENT OF COMBINATION REPRESENTATIVE.

In some lines it may not appear worth while to send out travelers who make the territory often, and in certain cases it would be commercially impossible. Nevertheless, a complete fund of information is necessary before the American manufacturers can get all the business that they actually deserve in southern markets. In many cases it would be a great saving if the various associations of manufacturers could combine and send out a man for each association who is essentially an American, has the interests of the organization at heart, is prepared to live abroad, and can assist in the solution of whatever difficulties may arise. Such a man could probably be kept abroad at a total cost of \$12,000 per year. This would cover salary, rent, clerk hire, traveling expenses, and every other expense.

He would undoubtedly have the assistance of many Government officers, to the extent that information might be available. He could secure from each member of the organization a list of their

foreign representatives, and investigate to see whether the latter were really representing the manufacturers. If not, he could be instrumental in selecting a real representative, if such a course seemed desirable. He could arrange mailing lists and see that advertising matter was actually put in the hands of the persons to whom it was addressed. If located in a country where advertising matter pays import duties he could reduce those costs considerably by receiving it in bulk and distributing it—charging the cost to the house that sent it.

It would seem that the most effective way of developing the maximum possibilities of the Chilean hardware field is to employ some worthy representative, big enough to merit the confidence of the people who send him out, and then to give him harmonious and vigorous support in the efforts that he makes.

GENERAL CONSIDERATIONS.

To some it might seem, after reading the foregoing discussion, that so many complications in foreign business would make it too difficult for the average small manufacturer to enter the field. And it is both true and unfortunate that many attempt it only when the domestic trade is poor, thereby creating the impression that they are acting in the spirit of opportunists rather than seeking the establishment of permanent relations in a new phase of activity. It may be that they do not appreciate the importance of perseverance in the acquirement of foreign business. This is not an enterprise to be undertaken in a speculative mood, as one might buy stocks on a margin, hoping to profit by a rise of a few points and then drop the affair. Foreign trade is certainly not a field of endeavor that can be entered, and abandoned, and taken up again, with any hope of success. The damage done, for instance, by erratic or intermittent advertising, without consideration of one's future policy, is apt to be great. And it will assuredly be expensive to the person who has an idea that a so-called "whirlwind" selling campaign is sufficient to make a big immediate profit and that when domestic trade picks up the foreign client can be abandoned. Any one who does this must have an extraordinary opinion of business men in other countries, and such an opinion must be considered as doing him very little credit. It would be much better for all concerned if the houses who do not intend to meet the conditions of trade in South America should drop the project altogether, or direct their advertising solely toward export houses at home or foreign houses having agencies in the United States.

The Chilean sentiment opposed to the payment of cash against documents in Valparaiso or port of origin is not necessarily due to the desire of local buyers to withhold payment until the last moment. Some feel that the foreign manufacturers make this demand so that there may be no opportunity for the buyer to withhold payment on goods that are not according to specifications or are different from those requested.

The writer makes no criticism personally and does not feel that he is justified in saying anything that might tend to indicate the unwillingness of American manufacturers to enter or maintain themselves in the markets on the west coast of South America. He has, furthermore, never received any information from any source point-

ing to an unfair spirit on the part of American manufacturers. He merely presents the foregoing records of criticisms by local buyers as in the nature of a difficulty that must be overcome or a problem that must be solved. Another point to be considered is that the local merchants who complain to the writer because of difficulties they have experienced obviously represent only the small minority, having to do with isolated cases. It is improbable, of course, that any individual would ever hear of even a small percentage of the operations that went through smoothly. However, if a criticism is presented with regard to one factory in an isolated case, it may prove advantageous to others as pointing out one of the ways in which things should *not* be done.

TRAINING OF EXPORT MEN BY EUROPEAN FIRMS.

It may be noted in passing that European houses devote careful attention to the training of their export men. A clerk is not discharged because a few dollars may be saved in a temporarily dull period; and this attitude obtains, not because of the highly sympathetic nature of European export houses toward their personnel as compared with other merchants, but because the clerk knows their clients and has studied the business of the house. He has cost time and money and is one of their investments. Investments are supposed to be made with care, and clerks may be the future department heads or junior members of the firm. If that prospect is not open to them they should leave the house and go elsewhere, and if they are of sufficient value to be offered the prospect the house can not afford to lose them. An export clerk should study languages, foreign credits, international exchange, postage rates, packing, consular invoices, transportation facilities, and many other things. He should not be denied the privilege of making a trip to the foreign markets some time early in his career, while he is young and his mind is receptive. When he has made himself of value to the house he should certainly be kept in the service.

If the writer has seemed to be insistent in his emphasis on certain ideas that are really axiomatic, it is not because he fails to realize that many American firms engaged in the export trade already know and understand the business better than special studies such as this can possibly teach them. He does not presume to make suggestions to the really great number of organizations that have achieved such success that the combined efforts of a host of competitors can not get their business from them. He has, on the contrary, considered himself very fortunate to be able to watch their methods and learn from them.

SCOPE OF SUGGESTIONS.

If, in reading this chapter, it occurs to anyone that the suggestions submitted are exceedingly general and perhaps not strictly pertinent to a consideration of a specific local field, it should be remembered that, while particularly relevant to Chile, they are applicable as well to many countries south of the United States.

On very few of the important points in this report has the writer ventured to express a personal opinion based on untried ideas. If the suggestions contained herein are found to be of value to any American manufacturer or exporter, it is hoped that the credit for

them will be assigned where it belongs—that is, to the American business men who in normal years have sold abroad some twenty-five hundred millions of dollars of the products of the United States and have distributed them, in competition with strong and intelligent foreign houses, to every corner of the earth.

REGISTRATION OF TRADE-MARKS.

The registration of the trade-mark or the company's name is a step that should be taken at the earliest possible opportunity by anyone seeking to do a permanent business, since any person is able to register any name and prevent the owner from doing business under his own name.

The process of registering either name or trade-mark is a very simple one. No lawyer or counsel is necessary, and any representative would be quite able to do it if provided with a power of attorney, either special or general, and copies of the trade-mark.

The place of registration is in the Sociedad Nacional de Agricultura. There are two classes of registration—that of the “marca de fábrica” (trade-mark) and that of the “marca comercial” (dealer's mark). It is rather hard to distinguish between the two classes. To make sure of full protection it is suggested that both be registered. The cost for the “marca de fábrica” is 12 pesos (\$2 to \$2.50, depending on the rate of exchange). The “marca comercial” costs 3 pesos (about \$0.60), and 1 peso extra (about \$0.20) for each copy of the registration. The total cost, therefore, would be 17 pesos, or about \$3.40. The registration would be valid for a period of 10 years.

In making the application the following information must be provided: (1) Name, occupation, and residence of the petitioner; (2) location of factory; (3) kind of industry or commerce carried on (in a hardware line this would be “ferreteria y mercería”—that is, ironware and all forms of small, or shelf, stock); (4) 10 copies of the trade-mark. No certificate of foreign registration is required. After the above data have been noted in the application book and a few days allowed for comparing the mark with others, the petitioner returns with his receipt. No publication is made or required.

A proposed new trade-mark law has been introduced in the Chilean Congress and is now under consideration.

There is presented below a translation of the present law on the subject, dated November 12, 1874:

ARTICLE 1. A register is opened to inscribe trade-marks or dealers' marks, national or foreign.

ART. 2. Under the designation “trade-mark” are those marks that are put on objects made in Chile or in other countries by manufacturers or agriculturists, and under the designation “dealer's mark” those that the merchant adopts to put on merchandise sold by him.

ART. 3. The marks that will be considered as the trade-marks or dealer's marks are proper names, emblems, and all other signs that the manufacturer or merchant adopts to distinguish the objects that he makes or sells.

In addition to the labels borne by the goods for legal reasons they should also bear the inscription of “trade-mark” or simply the initials M. de F. (marca de fábrica), and the trade or commercial labels should bear the inscription of “dealer's mark” or the initials M. C. (marca comercial).

ART. 4. The name of a rural estate, mill, foundry, or factory shall be for the exclusive use of the owner of the rural estate, mill, foundry, or factory.

ART. 5. He who inscribes a trade-mark or dealer's mark in the register has an exclusive right to the same.

ART. 6. The transference of a mark, or the permission issued for another to use the same, must be registered in the office and announced through public advertisement for a period of 10 days.

ART. 7. The inscription of the trade-mark or dealer's mark should be renewed every 10 years, and in case this is not done the registration will terminate.

ART. 8. The register referred to in article 1 will be opened in the office of the Sociedad Nacional de Agricultura under the direction of the president of this body or a delegate named by the council. In the latter case the appointment of the delegate should fall on one of the members of the governing council of the said society.

ART. 9. The entry in the register must contain the day and hour that the inscription is made, the name of the owner, his occupation and residence, the location of the established factory, the kind of industry or business to which the mark belongs, as well as a facsimile of the mark.

There shall be added to the inscription the respective number of the mark deposited and also any other information that is thought necessary.

Both the entry in the register and the copy that will be given to the interested party shall be signed by the president of the Sociedad Nacional de Agricultura, or his representative, by the interested party, and by two witnesses.

ART. 10. There shall be paid to the Sociedad Nacional de Agricultura 12 pesos for the inscription of the trade-mark, 3 pesos for the dealer's mark, and 1 peso for an authorized copy of either one.

ART. 11. He who falsifies or fraudulently uses the trade-mark or label provided for in the present law shall suffer the penalty designated by the penal code.

ART. 12. All falsified objects shall be confiscated for the benefit of the lawful owner of the mark. The utensils of manufacture will be destroyed.

ART. 13. Every year, in the month of August, there shall be published in the official paper a list of the marks that have been registered.

VI. ATTITUDE OF CHILEANS TOWARD AMERICAN HARDWARE EXPORTERS.

Before any intelligent person attempts to make suggestions to a long-established manufacturer regarding the ways in which his business might be improved, it would of course be highly desirable to learn from that manufacturer what difficulties he had previously encountered. That privilege has not been available to the writer, and he has had to content himself with such knowledge as he has obtained from years of residence abroad, a study of statistics, and conversations with foreign merchants handling the goods. The statistics of Chilean hardware imports have already been presented in this report, and it is now purposed to present some typical replies to a question asked of certain important Chilean merchants, principally in the city of Santiago. The question was: "What reason do you assign for the relatively small amount of business done by American hardware manufacturers in Chile?"

The replies were substantially as follows, the information being summarized and presented in the third person rather than as direct quotations:

Dealer No. 1.—This merchant mentions the lack of satisfactory banking facilities; very bad packing, which adds greatly to the cost because of breakage and deterioration; and improper interpretation of the orders. He considers the treatment of customers by the commission, or forwarding, agents as something beyond his comprehension. He states that certain of these agents with whom he has done business have apparently been working in direct opposition to the interests of their clients, the foreign firm. He registers a complaint concerning the high price of ocean freights from the United States as compared with rates from other exporting nations. Reference is made to unusual and high extra charges, such as cartage, commissions, etc. This dealer asserts that merchandise shipped through the intermediation of American commission firms has nearly all arrived with extra charges for expenses amounting to from 20 to 25 per cent of the value of the merchandise, and this is considered excessive. He uses French screws because they are cheaper, and French locks for furniture and interior doors because the people want them and he can not get them elsewhere.

He buys garden tools from France, shovels and monkey wrenches from England, and agateware from Germany.

Dealer No. 2.—This merchant actually handles a large amount of American goods, but complains of the lack of banking facilities and bad packing of certain American products. He says that, so far as he can see, no attention is paid to the requests or complaints of the clients in Chile. He lacks confidence in the American commission firms, who, he says, often do not send the original bills, thus creating in the mind of the purchaser an uncertainty as to whether the commission man is quoting the price of the factory or his own price, although he is supposed to be acting in the interest of the Chilean merchant. In numerous lines no advantage is seen in making a change from present European connections, which have been enduring and profitable, because (1) the consumers often ask for European articles, such as English linseed oil, German rubber hose and certain kinds of plows, and French locks and building hardware; (2) Chilean customs and habits are more European than North American, and in local construction there is much imitation of European methods and materials; (3) in Chile there are few farmers, miners, builders, and workmen from North America who might ask for the American article, while there are many persons from Europe; (4) the European exporters handle a wider assortment of goods and have given greater facilities to the Chilean merchants, the expense of doing business with them has been less, and the freight rates from Europe have been lower than from the United States.

Dealer No. 3.—This merchant says that American tools are expensive, but are of good quality and are in demand. He buys American staples, which compete with the European in a satisfactory manner. He imports hardware from several countries and finds no difficulty in doing business with the United States. He purchases his heavy American products through the big importing houses, because they have their own steamship lines and offer better rates than others. The freight rates from Havre, Liverpool, or Antwerp, up to August, 1914, were 33 francs (\$6.37) per metric ton of 2,204 pounds, via the Pacific Steam Navigation Co., but bundles more than 6 feet in length paid by volume. The rates from the United States were generally more than that. German salesmen, this merchant says, often bought samples and sent them home in order to compete on the article. He mentions also the fact that the consumer in Chile generally prefers something cheap and usually asks for a certain mark with which he may be familiar.

Dealer No. 4.—This merchant states that his principal difficulty with American goods has been faulty packing, and because of that detail he prefers the German make. He sells a number of American articles, however, though the majority of his stock of carpenters' tools is French and English. The store is now in liquidation.

Dealer No. 5.—This merchant imports directly from London, the United States, and Denmark. In carpenters' tools he prefers the American type, but has difficulty because of the lack of banking arrangements and transportation facilities. He believes that orders are filled more rapidly if sent to Europe.

Dealer No. 6.—This man has never imported from the United States because of unsatisfactory terms of sale and banking difficulties. He sells complete installations of acetylene lighting systems. He imports tools for gas fitters and mechanics from England, France, and Germany through commission houses. He imported \$25,000 worth from Germany during 1913 and less from the other two countries.

Dealer No. 7.—This importer buys screws from the United States because they get to Chile more quickly than from France. He says that they cost more, however, and are not as good. He finds American packing bad as regards stoves and glassware, but has had otherwise no packing difficulty. He finds it economical to buy locks and fastenings for furniture, ordinary drawer pulls, and rubber hose in Germany. The Banco Aleman Trasatlántico accepts drafts for 90 days after sight and delivery of documents when he is buying American goods; that is, if the merchandise arrives on July 1 the documents are delivered at once and payment is made October 1.

Dealer No. 8.—Most of the carpenters' tools are from the United States, as well as many other articles. No difficulties have been experienced.

Dealer No. 9.—This merchant buys much in the United States. From Sweden he imports shears and scissors, razors, and screw drivers; from France, building hardware that is peculiar to that country (used much in Chile and not made in the United States), as well as alligator wrenches, sickles, and scythes; from England, shovels and tanged chisels. He has encountered no difficulties except from lack of banking facilities.

Dealer No. 10.—This man buys from various countries and has had no special difficulties.

Dealer No. 11.—American packing is asserted to be bad, and packages are regarded as too small, thereby increasing the expense.

The above statements are given, not as an expression of the writer's own beliefs, but simply to illustrate the opinions entertained by prominent Chilean merchants in the hardware line. They cover almost exhaustively the ordinary difficulties existent in the Chilean field, provided the price and quality of the goods offered have led to the placing of an order. They are, of course, difficulties that are not met until the order is actually given, and have nothing to do with the manufacturer's problem of getting the order in the first place.

It is gratifying to note that indications point to the early elimination of some of the causes for complaint. For example, preliminary arrangements have already been made looking toward the establishment of an American branch bank.

VII. PACKING HARDWARE FOR CHILE.

The reader will doubtless have noticed in the preceding chapter that certain of the merchants who were interviewed voiced a complaint with reference to the poor packing of hardware received from the United States. The practices of our manufacturers in this respect deserve a somewhat detailed discussion, and it shall be the effort of the writer to suggest practical methods of conforming to the requirements of the west-coast trade.

Some, though not all, of the American shippers are giving adequate consideration to this subject. It is certain that the not uncommon complaint against our methods of preparing packages for shipment should not be lightly disregarded. There are instances, of course, where it is seemingly impossible to provide against accidents. For example, if a purchase is made by a firm on the American seaboard, apparently for domestic use, and it later develops that the package has been shipped abroad and dangled over a lighter in a bad sea, finally landing in a corner against some other package, it can not be considered surprising if the box is found broken. The purchaser is likely to say that the packing is not good, and to condemn everything coming through that seaboard purchaser or from that maker, when, as a matter of fact, the maker may not have known that the goods were destined for foreign shipment.

The salient fact to be remembered is that anything unloaded in Chile under the existing conditions is going to get treatment that would break into kindling wood practically any hardware box carried from St. Louis to New York, or from New York to England. It may be said that there are practically no docks on the coast of Chile, and it is certain that very few shipments from the United States to that country ever enter a harbor where even an attempt is made to have a wharf of any kind in actual use. There is, very often, a heavy sea. The stevedores can get a job elsewhere if they lose the one they have. The ship's petty officer in charge of the crane is hardly ever of the same nationality as the workmen. The cargo is apt to be very much mixed, the light is poor in the hold, and the bundles are likely to be heavy. This last condition arises from the fact that most importers like to have the shipments come in packages of from 200 to 300 pounds, because it saves freight, as well as customhouse brokerage charges, which are based on the number of packages handled. After

the bundle is placed in the launch, it is towed to the customhouse and hoisted again to the receiving platform or dock for launches. It is tipped over, loaded onto a little car, and hauled into the customhouse. Here it is tipped over and the contents investigated. It is then closed, loaded onto a cart, if not too large, and hauled to the railway. It is not lowered from the cart; it is tipped out and falls about 3 feet or 3 feet 6 inches. This tipping-over-and-dropping operation, at heights ranging from 3 to 10 feet, occurs about six times, and if the box breaks the contents leak out. However undesirable this way of handling goods may be, it is assuredly much better to accept it as a fact and pack accordingly, before claims for damage or losses of customers occur, than to employ, even rarely, a box that can not stand such usage.

BANDING THE PACKAGE—RISK OF THEFT.

On the other hand, duties are usually paid on gross weight, and so also are the freight rates. How to get the box strong enough, without being too heavy, is a problem that merits very careful attention. The size, as compared with weight, should not be such as to necessitate a higher freight rate on the ship. The package should be banded so well that breakage is difficult, but the bands should be of an interlocking type that can be opened only by partial, but perfectly obvious, destruction. This is for the purpose of localizing the risk of theft. If the box arrives at the customhouse with the bands broken, a formal complaint should be made by the customhouse broker, and this action will undoubtedly be taken by the local merchants when they instruct their brokers, since if bands are broken the customhouse authorities generally refuse to receive the case except in the presence of the consignee. There should then be no difficulty in tracing the loss.

Many tales are told about loss by theft in customhouses all over the South American continent. The writer has asked several importers who do business through the port of Valparaiso whether such things happen there. Three said "yes," and the others said "no." Those who said "yes," were then asked how they knew that such was the case, and they all replied that somebody told them so but that they themselves had never lost anything. One importer located in Santiago and handling his business through a broker in Valparaiso said that he imported hundreds of thousands of dollars' worth of goods through that port and that he had had but one loss during years of business. His single loss was small, and he was informed that if he would make a complaint the inspector would be discharged, since the authorities could not permit suspicion of the inspectors. Proof has been lacking. No foreign merchant has spoken of personal loss to the writer. Certain native houses insist that losses do occur, but they can not localize them and are not certain whether they take place aboard ship, on the railway, in the poorly protected customhouse yards, or after delivery has been made to their own men. The highly appreciated assistance that the manufacturer can offer is so to band the bundle that theft will be discovered if committed. No investigation of losses from this source has been made by the writer except at Valparaiso.

MERCHANTS' INSTRUCTIONS—INSPECTION BEFORE SHIPMENT.

Order blanks should have sufficient space for the merchant to write in full his instructions for packing. He should state the name to be used in classifying the goods. His wishes should be followed absolutely. Stencils must be used in marking. It is illegal for goods to enter Chilean customhouses with marks, names, and directions painted on with a brush. If a secondhand box is used every old mark should be planed off or scraped off, so that there will be no confusion. Complete marks should be put on as many sides as is possible. This may prevent the box being tipped over one or more additional times.

Many manufacturers are unwilling to believe that their particular method of preparing goods for export is anything it ought not to be, and their packing-room foreman is apt to be very insistent that the work has been well done. It may have been, from his point of view, but that standard may be a domestic one. He may think that what is good enough for North Dakota is good enough for Chile and Bolivia, but such a conviction, if not in accord with the wishes of the client, is comparatively unimportant. The really vital point is that American manufacturers want to sell goods. In order to do that they must please the purchaser. They do not constitute the only source of supply, and in order to satisfy the client they must pack in such a manner that the regrettable opinions abroad concerning our practice in this regard shall be effectively dispelled. That we probably do not pack, on the whole, as well as the English may be attributed to the fact that they have been doing an over-sea business in manufactured articles for centuries, while Americans have been engaged in that occupation for a relatively short time. It may as well be admitted that, as a nation, we have certain things to learn about export trade, and one of those things is the proper form in which everything we make is to be put up, not for South America, but for Mollendo, Callao, Punta Arenas, or Rio de Janeiro, as the case may be. Certain organizations have made a careful study of this subject and make a practice of acting as inspectors or examiners of goods about to be put aboard. One of the best-known firms in the United States, internationally famous as inspectors and engineers, has lately had reason to make a careful study of the conditions on the South American west coast and has been employed to inspect all the material purchased for one of the Governments. It is assumed that this firm would be in a position to act for many clients for a small charge, investigating every package about to be shipped and having it fixed properly if it shows signs of any deficiencies in packing. It is not necessary to employ a big firm to do the inspecting if one does not feel so inclined. It should apparently not be difficult for a manufacturers' association, or a group of firms, to employ some competent man as their dock inspector, to pass on all shipments before they are put aboard. The charges for such services should not be put against the account of the client. It is money spent in a form of insurance, of course, but it is also an expenditure in the direction of self-education. If it is found that packages are coming to the dock in bad condition, it is easy to trace the blame. If the practice continues, there is one essential point to be considered—namely, that the reputation of the house is being endangered in foreign fields because somebody does not pack according to instructions.

VARYING LOCAL CONDITIONS—EXAMPLES OF GOOD PACKING.

While the writer is discussing this subject he desires to say that notes concerning the proper methods of packing for one part of South America do not necessarily have any value when one is considering another part. Goods may be landed at Buenos Aires or Santos with great ease, but landing them at Valparaiso, or even Antofagasta, is not a task for amateurs. Also the proper method of packing tools is not necessarily the proper one to be followed when tin lanterns are concerned. Tools pay no import duty, while lanterns pay a duty of a little more than \$0.16 per pound, gross weight. Assuming that wood weighs about 4 pounds per board foot, it is seen that the import duty on the packing in the latter case would be \$0.65 per board foot, which is rather high. No single manufacturer is expected to know all the specific points of this nature about each article, but he can easily request the client to instruct the salesman with care. The client might overlook the point in some cases, but this is doubtful if there is space on the order blank for packing instructions.

Let the manufacturer consider for a moment the results obtained by three exporting interests through their studies in packing. One who travels in any foreign land and visits the customhouse or docks will occasionally see broken boxes and torn bundles, but among the heaps of goods he will find packages of a certain kind that are practically always in good condition. They are seen not only at the docks, but at the distant ends of railways and burro trails, undamaged and ready to return if necessary. They contain tea from Asia, or oil, or sewing machines. It is betraying no secret to say that the designs of these packing cases have been the cause of economies amounting to thousands of dollars per year. More than that, they have, in the case of two American companies, brought about a reputation for packing of which any organization might well be proud.

IMPOSITION OF FINES.

Fines are imposed in nearly all countries for evasion, either real or apparent, at the customhouse, and it costs less to make a clear and exact statement. Companies with whom the writer has been associated have learned to their cost that copper track bonds and carbon brushes are not "electrical supplies" when entered at a foreign customhouse. It is quite certain also that files and razor hones are neither tools nor hardware. The difference between the classifications in Chilean customs tariffs is approximately \$0.17 per pound gross weight, with a fine of double the tax, payable in part to the discoverer.

Insurance should be taken out in the United States against damage and theft in transit. The local merchant can not collect his losses by mail, but can generally supply satisfactory proof.

DESIRABLE METHODS OF PACKING TOOLS.

It is not purposed in this report to attempt the determination of every variety of packing, because the problem is as extensive as a list of hardware. As a fundamental principle, however, it may be reliably assumed that anything that can be wrapped in light paper, to avoid rust and scratches, and then placed in a cardboard box, to facilitate

handling by the merchant or the clerk in charge of the shelves, should be so prepared.

Neat inner packing is highly desirable for tools, but of course the use of cardboard boxes is not recommended for bolts and similar articles. If a manufacturer takes enough pride in his product to wrap pieces of thin white paper around the articles, the workmen will undoubtedly be impressed by this fact and themselves be proud of the tools and take good care of them. Through such care they last longer and work better, and the reputation of the tool is accordingly improved or sustained, as the case may be.

Dado planes, for example, might require the removal of the iron and the laying of the block on the flat side, in order to avoid excessive space requirements. Other details of this kind will occur to any packing clerk or foreman. The cardboard boxes should have the name of the tool, its size, blank spaces for the insertion of price figures, the name of the factory, and the trade-mark. This last is important. If it can appear in a bright color so much the better, but if the prevailing custom of the factory has been to use dull colors they should not be changed, since it certainly does not pay to alter either trade-marks or the colors in which they may ordinarily have been exhibited.

The method of packing just mentioned is not unusual with American tools, and the suggestion that it is the proper practice is not for the purpose of trying to initiate something new, but to indicate to the manufacturers that it is not only an excellent method of presentation in itself but is so considered by the merchants and consumers in Chile. It is one of the causes for the present and past sales of American goods. The continental European competitors generally ship tools in such a manner that they must be piled loose, or else they arrive done up in brown paper and wads of string. In the latter case it is impossible to distinguish a package of files from one of chisels, and the merchant's shelves resemble those of a second-hand store. Progressive merchants in Chile (and there are many such) are as much interested in the appearance of their stores as are dealers in other parts of the world.

CHARACTER OF OUTER COVERING.

After the tools have been placed in cardboard boxes the outer covering should be prepared. It should consist of a closely nailed box. If it is not too expensive to tongue and groove the boards, so much the better. The labor in matching rarely costs very much. A little lumber is lost, but not a great deal. (This is not necessary for all articles; the writer is here discussing tools, scissors, knives, files, bits, and other high-grade merchandise.) After the case is made it should be lined with oiled paper, in order that dampness may not enter and affect the appearance of the cardboard or contents. On the oiled paper may be laid the cardboard boxes, to a depth of one or two layers; then a thin piece of cheap wood should be laid on to distribute the weight of each layer over the lower ones. If there is danger of crushing and of the destruction of the cardboard boxes, then the boxes on the sides should be replaced by inserts of wood that will support the separators. When the case is filled it should be so nailed that the merchandise will not be cut nor nails

stick out to catch one's hand. A box is not tenderly handled by an ignorant stevedore if it has nails that lacerate him.

If the box is less than 150 pounds in weight, the lumber should not be less than $\frac{1}{4}$ inch thick, and if from 150 to 300 pounds (the latter being about as heavy as is ordinarily desired) the wood should be ordinary 1-inch stuff as a minimum, with extra framing around the edges in all cases. No knotty boards should be used. They detract from the strength and afford convenient holes to be punched through by unauthorized persons who would like to know what the box contains.

After all this is done, locked iron straps should be put on and nailed tightly to the box. The lock on the strap, previously referred to, is nothing more than a tongue entering the corresponding opening, pressed close and nailed. Its presence indicates clearly where anything has been tampered with. The straps should be an inch wide if the box is over 100 pounds, although narrower ones, or fewer of them, might be used on a lighter box.

If the buying merchant has any other choice in packing, his wishes should be gratified, but if no instructions are issued and the case or box described above is broken, or the merchandise damaged, the shipper may feel that he has just cause for complaint against some one on the ground of carelessness or malicious injury.

ADVANTAGES OF LARGE CASES.

Tools do not pay duty, nor do their packing cases, and so long as this law remains in force there will be little reason for criticism on the part of the buyer because of a little extra freight on the lumber. As regards sizes and maximum weights of cases, there is usually no appreciable difference in ocean freights because of a slight increase in weights of boxes. It is desirable to make the shipment in as few boxes as possible. The customhouse broker makes a charge per case and not per weight or value. The decrease in number of cases also reduces the amount of clerical work all along the line and makes the customhouse inspection easier. The Chilean railways lump the shipment and charge for the unit of 100 kilos or fraction thereof (kilo = 2.2046 pounds). For example, the freight on one case of 40 kilos is exactly equal to the freight on a case of 100 kilos. If the two are shipped on one bill of lading, the charge is not on 140 kilos but on 200 kilos. If a shipment of five boxes of 20 kilos gross, each, should all arrive together and be forwarded together over the railroad, the charge would be on 100 kilos; but if one box were delayed and forwarded separately to an interior town, there would be a charge for 100 kilos on each of the two shipments.

If the articles were all sent in one case of 100 kilos, however, there would be no possibility of separation of the shipment. The principal advantages in the large size, then, are the relative ease in making out all documents, in keeping track of the shipment, and in inspection, as well as the reduction of expense in customhouse brokerage and cartage. If the shipment is large, the cases should not fall below 100 kilos (220 pounds) and may well weigh as much as 125 to 150 kilos (276 to 331 pounds). Since these weights seem to correspond to the expressed wishes of the recipients of the goods, it would appear desirable to bear them in mind. The same data hold

good with respect to the weights of any merchandise ordinarily shipped in cases. This will probably be surprising to many persons who have read of the advantage of breaking up boxes into small sizes when shipping to South America, in order that mules or goats may carry them about. That may be true as regards the lofty Andes of Bolivia and Peru, but most hardware coming into Chile travels on a railroad or, at worst, in a bull cart.

TACKS AND NAILS—COMPLAINTS CONCERNING OTHER ARTICLES.

In the packing of tacks and nails the local preference is for kegs. There is complaint from time to time about the short weight of the smaller nails, and it is suggested that strap iron be used across the heads of kegs of tacks and screws. The European manufacturers seem to have the best of the situation in these two articles, partly because of a difference in packing and partly because of a difference in price.

Lamps and lamp chimneys require the most careful attention in packing, and cases, to be satisfactory, must be as large as can be handled by two men.

There is much complaint in Chile against the general American practice in the preparation for shipment of articles of cast iron, coffee mills, meat cutting or grinding machines, parts for grindstones, stoves, and material in thin tins, such as paints and varnishes. It is said that coffee mills rarely reach Chile without the handles being broken, because they are generally shipped in crates of thin and flexible wood, with little or no interior protection, and the mere tipping and jolting of the box breaks up many of the pieces. It is recommended that interior spaces be closed. The French often pack such articles with good corks and steel shavings used for floor polishing—after having consulted the purchaser, of course. Not only does this protect the merchandise, but the packing is salable. In addition, the fact of its being there makes the box contain assorted merchandise, which, in this particular example, pays a lower rate than levied on several of the articles if they were shipped alone.

One merchant reports that he has received a box of literature, unsolicited, along with his shipment of varnish, that cost him \$6.50 to obtain, since he had to accept the shipment complete.

IMPORTANCE OF ACCURATE DECLARATION OF WEIGHT.

One point that simply *must not be overlooked* is the danger of declaring the weight to be less than it really is. One experience in connection with this was unfortunate in the extreme. The bills were all made out properly, and only the consular invoice stated that the shipment weighed a certain amount, when the actual weight was greater. The inspector ascertained this by actually weighing the shipment, and his discovery resulted in payment to him of half the fine of about \$300. He was insistent and was supported by law. The British employer of the clerk who made the error paid the bill of approximately £60 and did not leave the innocent purchaser to suffer. An error in the other direction (declaring a weight greater than the real one) is not an offense, and claims may be made and settlement effected on the rectified weight.

In closing it may be noted that weights must be stenciled on the packing case in kilos, not in pounds. The metric system is the legal requirement in Chile and several other South American countries.

VIII. FACILITIES FOR OBTAINING CREDIT INFORMATION.

Facilities for obtaining credit information in Chile comprise (1) the various banks, of which a list is given in the section on "Banking"; (2) a few small credit agencies, of which the most important is "Labbe, 575 Bandera, Santiago, Chile"; (3) consultation with other business houses or merchants and personal acquaintance.

The various banks keep a reasonably close record of the amount of capital that a merchant has invested, and insist, if they advance him money, that he make deposits every day and handle his expenditures by check, in order that they may keep a record of his income, stock on hand, obligations, and general expenditures.

METHODS EMPLOYED BY BANKS.

Very often a merchant opens an account with a bank, which permits this open credit to run for six months at a time. The borrower pays about one-half of 1 per cent on this total sum whether he draws against it or not. Any funds that he does draw are paid for during the period they are out, at the rate of 8, 9, or 10 per cent, depending on the conditions, the risk, the character of the bank and of the merchant. If a merchant is considered very reliable he might, under favorable circumstances, obtain an open account for 40 per cent of his actual paid-up capital, although ordinarily the sum obtainable seldom exceeds a third of his capital. In addition to this credit, the bank will at times accept his drafts in payment for goods up to a maximum of 50 per cent of his credit advance. For example, if an ordinary merchant has \$100,000 invested in his business, he might obtain a credit advance up to \$35,000, and this he might or might not use. In addition to this, his drafts might be discounted up to, perhaps, \$15,000. This means that banks may, and often do, loan a reliable merchant 50 per cent of his invested capital when he has merchandise and property to cover the indebtedness. The bank will, of course, insist that he do all his business with them, and another bank would hardly think of discounting his drafts.

A bank director in Chile can not serve two institutions, and local banks do not view with great favor the idea of exchanging credit information in an official manner. One director or bank officer, of course, often asks his personal friends in other banks for information regarding individuals, and such information is occasionally imparted, though, perhaps, not to the extent desired.

It is surprising to many persons to know that in many parts of South America a canceled check will not be returned. It is bound in a book at the close of the day's business and carefully guarded by the bank as a precaution and as a record of each employee's transactions. Merely as a point of interest, and not because it has anything to do with credit information, it may be noted that banks often allow each teller a certain sum per month, apart from his salary, to cover errors in payment of checks.

Besides the data secured from checking up the merchant on his business transactions, banks also consult credit agencies at times. The officers of the banks are generally men of broad acquaintance in the community, who know the family, social, and commercial relations of nearly everybody in business. The banks are, therefore, the fundamental sources of credit information. The fact that they report in a given way, however, is what might well be termed corroboratory, rather than final, evidence, because they may not know what obligations the person may have assumed without advising them.

The above facts are set forth to show how the banks handle their business with the merchants and what information thereby becomes available to them. The banks themselves are not absolutely guaranteed, and cases have been mentioned in which a man has secured credit advances in more than one bank.

VALUE OF BANK REPORTS.

In other words, the bank's evidence may be excellent at a certain moment, but not always reliable after the report has aged a bit. And, as above indicated, the person on whom they report may withhold vital information. This is really difficult, however, because certain banks have facilities that the public knows little about for obtaining private information. As a result of these private sources of information, it becomes known at times that certain individuals intend to do things not in accordance with accepted practice. These sources of information are, of course, available to banks all over the world and are undoubtedly used in general European practices, on which the banking methods of South America have been founded.

The foregoing statement is not made for the purpose of conveying any idea other than those that have been plainly stated. It is not given with the intention of indicating that a merchant in Chile is different from a merchant in Cuba or in other places, but merely to elucidate the statement that, although the banks may do all they can, their evidence substantiates rather than demonstrates.

The writer has been informed that local banks have been swamped with requests for credit information from American credit agencies and manufacturers during the last few months. The manager of one bank notified the representative of a large American company that they destroyed such requests for information because the people making them were not clients and were unwilling to pay for the service.

OPINIONS OF SANTIAGO BUSINESS MEN.

Three well-known business men of Santiago—one an Englishman, one an American, and one a Chilean—have made statements to the writer substantially as follows:

The best source of credit information at the present time is the banks, but the data given form only corroborative evidence and are not in any sense equal to the similar data given by banks in Europe or the United States. About all the information they are prepared to supply is that based on the record of credit extended and past performance in meeting obligations. It is not considered at all unusual for certain classes of men in Chile whose incomes are seasonal to promise to pay at the end of 90 days and then declare their unwillingness to do so on the date of maturity because exchange is unfavorable or merely because they need the money. Insistence on the meeting

of the obligation may result in full payment—and the loss of the customer—or, perhaps, half payment with a good interest rate on the remainder. The customer, however, often complains openly and bitterly against the forced collection, although bills often remain unpaid for such a long period that commercial failure would be the only possible result in other countries—the Chilean point of view differing in this respect from that in the United States or Great Britain.

The attitude of debtors to which allusion has just been made is probably due to the fact that people know each other, that there has been much intermarriage and little immigration, and that the rich people (and, generally speaking, those occupying the better positions socially) do not engage in commerce. Those who do so engage are often working with insufficient capital and are unable to protect themselves against exchange fluctuations and forced collections. The latter they regard as an aspersion on their commercial morality.

The persons who complain about such collections are often known as “sure but slow pay,” though of course, as in all parts of the world, there are some who do not pay. Of these last, however, it is not thought that the percentage in Chile is higher than elsewhere. As a general rule, the merchants who have a capital of \$20,000 United States gold may be said to be a reliable class, while those who have less than \$10,000 should handle their credit arrangements locally and not seek foreign obligations except through a locally established commission house.

A well-known bank manager who is considered an authority on Chilean credits has corroborated this view by stating that he feels that those who have weathered the storm of 1914 and 1915, and have a capital of \$20,000 United States gold, are generally worthy of confidence.

CREDIT AGENCIES IN CHILE.

After the banks, and separated from them by a considerable interval, one finds the credit agencies. There are said to be several, of a kind, but the only one that has been successful in maintaining itself for a period of years is that of Mr. Labbé, previously mentioned. The latter has prepared a book giving the capital, names of partners, and other related data for a very large number of the principal firms in various parts of the country. He also gets out special advices from time to time, usually monthly. These give the list of firms that have failed or gone out of business for any reason, as well as those that have increased or altered their capital; they supplement such information as has been previously submitted. It is understood that the agency charges about \$35 for the book and makes an additional charge for detailed, up-to-date reports on any firm or individual.

It is not thought that a report submitted by any credit agency would be as good as the bank report, but it would be supplementary and undoubtedly of value. It is obvious that such agencies can not have recourse to such information as the banks might offer, but, on the other hand, they might well be able to secure reliable information that, in the natural course of events, would not reach the banks. Agencies giving credit information have been known to devote attention also to the collection of accounts, to the publication of failures, changes in address, increases or decreases of capital, and many other useful and important matters of general interest to one connected with the commercial life of Chile.

In the event of an American firm, or group of firms, interesting themselves in trade with the west coast of South America, it would seem desirable to take advantage of the services offered by such credit agencies as exist, always bearing in mind, however, that collection and credit agencies, in combination, may not always make for the improvement of service in either line.

ACQUIRING INFORMATION THROUGH PERSONAL ACQUAINTANCE.

The third and last source of credit information—and the one in which, perhaps, the most confidence is placed locally—is personal acquaintance. It is of course idle to speak of such a means for a manufacturer in Chicago to learn whether he can sell to an importer in Antofagasta, but it is worth while remembering that this particular source of information forms perhaps the strongest asset of the big commission, or export and import, firms that handle the sales of the United States to the west coast of South America.

This is the kind of information that the manufacturer will get only after he has his own man on the ground; and even then if his representative is alone—that is, not associated with any local house or with representatives of other American firms—he will get but little of the personal information. It is obtainable, but securing it is a business comparable to that of the credit man at home. Working alone the representative may, in time, get much information, but in union or association with other American representatives he can get more.

It is hoped that some combination may render it possible to eliminate, or at least to facilitate the solution of, the vexing credit problem, not alone for Chile but for foreign markets generally.

IX. CONDUCTING TRADE AND FINANCING SALES.

Inasmuch as this report is primarily for the benefit of American manufacturers of hardware, it is not purposed to consider, except in the most general way, the prevailing practice as regards other lines of endeavor.

The great local business in Chile is the production of nitrate of soda. This is handled by several large houses established primarily for that purpose, or is bought and sold by brokers, payment generally being insisted upon in drafts against London in exchange for the documents showing ownership of the material. Credit sales are made to the nitrate companies, and they often pay in London bills or in local currency at the exchange of the day on which payment falls due. In the event that they desire to protect themselves against the variation in exchange, they may buy for future delivery, but this practice is limited to a few firms. There are a number of houses whose paper is considered *F. C. L.*, or first-class London drafts, and when one buys exchange for future delivery he is likely to receive the drafts of any one of these houses. The determination as to who can issue paper that will be so considered rests with the governors and members of the Valparaiso Stock Exchange.

A number of the big houses handling nitrates have boats running regularly to European ports, and it is of course their desire to secure as much return freight as possible. At the beginning such a firm is apt simply to seek the good will of shippers in the hope that they may

route the goods over its lines, but it is usually found that the local importers have routed the articles over a line in which they may be interested. The only way for the firm to get freight is to import and resell. The result is the establishment of an independent department and a general entrance into merchandising. Houses of this character, having their own steamships and their agencies scattered throughout the country, are obviously strong from a financial standpoint, and can secure practically any credit terms that the market demands. As a general rule, however, they do not need credit at all, being equipped with ample capital for handling nitrates, which are so great in volume and value that the merchandise purchases are, in comparison, unimportant. Since they have the capital, and have bought merchandise to fill their boats, they can afford to give credit to the local purchasers if they feel so inclined. One or two of them, in particular, make a practice of crediting farmers, since the latter generally have seasonal incomes and require credits against their crops. Since these firms sell to the farmers, they try to carry in their merchandise department everything that the farmer wants, especially tools and implements.

From this they branch out to supplying merchants for cash, or with limited credit, and the result is the large importing and exporting houses that form the nucleus around which most business in Chile is apt to form in a more or less connected manner. These houses act as bankers, shippers, importers, exporters, and exercise practically every other function in connection with commerce. Their heads are well-trained men who know the financial standing of nearly everyone doing business in Chile. The houses often act for foreign manufacturers for the purpose of financing the sales, provided they can get the handling of the shipments in addition to a profit in the actual operation. Many manufacturers are glad to take advantage of this opportunity to avoid the financial risk, which, by the way, is greatly exaggerated in the misinformation so often disseminated in the United States. They also act as agents, at times, for big specialties such as locomotives, thrashers, automobiles, and mining machinery. They seldom act as agents for such minor articles as oilcloth, rubber bands, fancy saddles, etc., but are glad to have catalogues with prices, so that they can buy where it best suits them or (what is much more important) sell what the small merchant wants them to get for him.

ORDINARY TERMS OF PAYMENT.

Next in order of importance comes the retail dealer. Without taking into consideration the extraordinary circumstances resulting from the European war, which obliged nearly everybody to modify completely the system of sales by restricting or absolutely withholding the credits that they had been in the habit of giving, it may be said that sales to hardware dealers by the big wholesale houses above described are generally on the basis of "payment due 90 days after the date of invoice, without any guarantee beyond the honor of the buyer." If payment is met on the day of expiration, it is common to allow a discount of about 6 per cent. If the retailer prefers to pay cash at the time of the order he is generally allowed a discount of 8 per cent, while if he does not pay the amount when it falls due he is usually expected to pay 1 per cent per month on the unpaid portion

until the account is liquidated. It may be said, in general, that about as many sales to Chilean hardware retailers are consummated on a credit basis as on a cash basis, or the reverse.

The above refers to sales made by the importers. As regards the method of handling direct purchases from Europe and the United States, it may be said that Germany offers the greatest credit facilities. It is not unusual for manufacturers of that country to draw on the buyer at 180 days after the date of invoice, and at times the conditions provide for payment 120 days after the date of invoice by means of a draft that is not due for another 90 days. As an example, let us suppose that an order has been placed with certain German makers by one of their Chilean clients, and the date of the invoice is January 1. They might ask, in some cases, for cash on July 1, but under the second arrangement mentioned above the bill would fall due on May 1, payable by a 90-day draft; the manufacturer would thus get his money on the 1st of August, provided he had not already discounted the draft. In the event that the goods left the German factory on January 1, they might arrive in Valparaiso within six weeks and be in the store in that, or some other, city at the end of the second month—that is, on March 1. Under the first condition outlined the retailer would have to meet the debt with cash in Germany on July 1, and this would have to be mailed not later than June 1. He would then have the goods in stock three months, during which time he would probably sell practically all of them. This means that the German manufacturer is financing the local merchant. Actually the German manufacturer secures credits at his bank for these bills receivable, but the details of German banking are, of course, not pertinent to the subject of this report.

PROBLEM ARISING FROM IRRESPONSIBLE MERCHANTS.

It is surprising to find how much criticism there is among the merchants in Chile with reference to this particular practice on the part of German houses. The criticism is brought about by what one might have termed an opinion had he been writing two years ago. It has ceased to be such now, however, and has become an unquestioned fact. The fault found was that practically anybody able to secure the assistance of a friend who would give satisfactory references was able to open a store and compete with the better class of merchants who were in the center of the town, paid higher rents, had more expensive employees, and were generally subjected to higher costs of doing business. Within a short time after the outbreak of the European hostilities a number of these little stores on the outskirts went out of business because of their inability to meet the altered conditions. This has tended to improve the situation of the better houses, and it is hoped by all interested that the practice will be abandoned of permitting the retailers to do business entirely on somebody else's money.

TERMS GRANTED BY FRENCH, ENGLISH, AND AMERICANS.

The French and English generally draw a draft payable in 90 days after the date of invoice, but this draft is usually payable with a 90-day draft, making the actual terms granted by the factory 180 days.

These documents are, of course, discounted in most cases, and the retailer really puts up the money locally within about 30 or 40 days after he has the merchandise in stock.

The American manufacturers who do not sell direct, but do business through commission houses, generally require payment 90 days after the date of invoice, but ask for a sight draft, since their facilities for discounting Chilean paper are small. This is one of the difficulties that the establishment of an American bank may assist in overcoming. It may be that the manufacturer does not really give this credit when dealing through a commission house, but that it is given by the commission house itself or the manufacturer gives it only with the additional guaranty of the commission dealer.

Owing especially to the serious difficulties brought about by the situation in Europe, the Americans have lately given numerous extensions to outstanding bills. They are, however, granting new credits to only a few dealers in hardware, often asking for cash in New York in exchange for the delivery of documents. This has a tendency to reduce greatly the amount of purchases made, since the local merchant is inclined to think in paper money, although he buys and sells in gold. It also limits the amount of goods purchased to the amount of surplus capital that he may happen to have. It is a sound practice from the point of view of American manufacturers, but it certainly does not increase their sales. To merchants who are really reliable it is good business to grant credit on a rising exchange, though one may withhold it on a falling rate as regards the gold-purchasing value of paper money.

The above remarks refer in general to the business between the manufacturer and the retailer. The latter, in turn, sells for cash to the occasional purchaser at the exchange rate of the day (basing his calculations on gold) or gives credit to the builder or contractor of works, to whom the majority of his sales are made. These builders or contractors are generally paid in weekly installments, and they then pay the hardware retailer for the material supplied. The retailer seldom, if ever, gives any discount to the builder or contractor. In proof of the purchase it is customary to require the buyer to sign a receipt for the articles delivered, and these receipts are returned or destroyed when the account is settled.

X. MARKET FOR PARTICULAR LINES OF HARDWARE.

The table of Chilean hardware imports given on pages 34 to 37 indicates in a broad way the total market (at least up to the present time) that has existed for certain general lines and shows, to a marked extent, the preference of the users for the various commodities. The same table indicates also that the preference for the output of a given factory or country is determined by different features in different cases. It might be said that in numerous lines there is such a marked difference that one type might be chosen in nearly every case to the detriment of another type, notwithstanding the fact that a selection was possible. Often, however, it is the sentiment of the retailer, or credit facilities, or a strong selling campaign by a manufacturer that tends, to a limited extent, to restrict the sale to a given product. In some cases the demand of the user, and the knowledge of that demand on the part of the retailer, assures the use, to a marked

degree, of a specific article for a specific purpose. There are certain forms of American locks that are almost universally used on doors leading to the streets, while in the same house the locks leading to the interior doors would probably be from another country and the ones used on the furniture would be from still another source. Some articles are so well known that the buyer asks for them naturally. The South American housewife asks for baking powder, or the farmer for a walking plow, not by the generic name of the article but by the designation of a particular brand.

Although there are individual peculiarities both among the goods offered and the people buying them, the specific difference in the specified article is the only point of real interest when comparing the product of one country with that of another. Probably the one feature that stands out most prominently is that the hardware of the United States is generally of a better quality and a higher price than the similar article from Europe; but to this rule, if it can be termed such, there are frequent exceptions. In some cases the North American product is not only superior, but is readily comparable with respect to price. In other cases the product is not only no better than the European article, but the people do not want it in any event. In some cases the articles desired are not even made in the United States or, if made, are practically unknown to the American people, and advertised very little in the foreign field. The writer, for instance, has never seen in the United States a small hand sickle, having very fine teeth, that is used chiefly in the grain fields though it might be used on lawns. He has never seen there a tool in the form of an adze but having very heavy forged teeth, nor a shovel made with a cutting blade in order that it can be used as an ax. Such tools, however, are in use abroad.

At times the preference manifested by the foreign buyer is the result of education and advertising, while in others it is a matter of credits. There is obviously no single feature of American hardware that is applicable to all articles sold in the Chilean market, and, since a general statement seldom possesses the same practical value as one of a more specific character, it has been thought best to discuss somewhat in detail the individual peculiarities that tend to determine the selection by the user.

SAWS.

To the superficial observer it might be surprising to note the great variation in the percentage of imports of certain articles from a given origin as compared with the percentage of other articles in the same line arriving from the same source. The United States sells 75 per cent of the saws, but only 43 per cent of the carpenters' tools, notwithstanding the popular conception that saws are used more by carpenters than by any other single class of workmen. An important factor to consider in this connection is the fact that saws include not only hand tools, but also band and circular saws for lumber mills. These two last classes are particularly important in Chile, there being about 1,200 portable mills, principally of Canadian and North American types. The tendency toward the use of the Canadian mills is largely the result of the British capital invested in the industry. The names of the dealers who are best known in the lumber region are Farquhar, Frick, and Geyser. In

addition to the portable mills previously mentioned, which are in operation in southern Chile, there are about 300 which at the present time have no engines and therefore are not in use. The capacity of each of these mills varies from 2,500 to 5,000 board feet per day. There is a small percentage of solid-tooth circular saws used, but speaking generally and with reference to all mills, with their various installations, it might be stated that the preference is for an inserted chisel-bit tooth. As regards saws, the millers indicate a preference for two American makes. Some French saws have been tried, but for some reason they have not proved satisfactory. The use of the chisel bit has been determined upon after considerable experiment in the handling of a wood known locally as "roble," which is ordinarily translated from the Spanish as meaning oak. In the particular case of Chile, however, the so-called roble is really a beech, corresponding to the beech wood of North America.

Although in the years shown in the statistical tables the item "saws" includes those of all varieties—builders', carpenters', band, and circular—reference to other years has indicated that the United States sells more than 60 per cent of the saws for mills. This might indicate that the percentage of other saws is perhaps even greater than the average deduced from the combined record.

One is likely, also, unless directly associated with the trade, to overlook the fact that butchers, dehorners, farmers, and many others use some type of saw. The peculiar features that induce a customer to purchase a given type of rip saw might have no bearing whatever on the choice of an individual who desired to purchase a pit saw. And it is evident that the person interested in the one type might be swayed by motives entirely different from those that induce the purchaser of the other to demand a certain article. For these reasons a comparison of the North American product with the generally similar product originating elsewhere would be quite impossible. No broad statement can be made to the effect that one is inferior or superior to the other, except for specific uses and persons. Germany is the most serious competitor of the United States for the saw business, and the fact that the manufacturers of that country sell almost 20 per cent of the total is undoubtedly due to their credit facilities, their large number of colonists, and the fact that they cater to the market for the cheaper grades. The small number of saws imported from England are sold because of their appearance and fair quality, while the lack of success on the part of the French manufacturer has been due to the high price and poor appearance. There are two North American firms whose product enjoys an excellent reputation and is locally considered to be about equal to that made by Spear & Jackson, the most important British competitor. The British prices are higher. There is no reason why the American manufacturers should not continue to secure excellent results in open competition for the sale of the first-class article.

Crosscut saws, in common use in the southern forest region of Chile, are seen occasionally in the central or northern part of the country where there are heavy timbers to be cut for construction work or a few large trees available for firewood. The principal models are 5 feet, 5 feet 6 inches, 6 feet, 6 feet 6 inches, 7, 8, 9, and 10 feet long. There are two makers who lead in this line, one being an English and

the other an American firm, their product differing little in quality, appearance, or price. The French article, on the other hand, can only compete with great difficulty, because it is too expensive and has no compensatory features.

One-man crosscut saws are used for cutting firewood and the popular model is known as the "One-man Champion." The current sizes are 3 feet, 3 feet 6 inches, and 4 feet long.

Buck, or complete wood, saws are of the most common and simple model. The generally accepted length is 30 inches, and this size is sold from almost every country attempting to do a hardware business in Chile. The fact that it is used by poor persons, as a general rule, makes it possible for the cheapest kind of labor to set the saw up or make the frame. Perhaps the cheapest saw of this variety is sold by the maker at about 30 cents each.

Hand saws are sold in Chile by various American firms who, taken as a whole, may be said to control the market for the better grades. The British make of Spear & Jackson enjoys a good reputation in at least two qualities, and the French pattern made by Peugeot Frères is sold in minor quantities. Few are sold that originate in Germany, in spite of the fact that a reasonably strong effort has been made to market them.

Compass and fret saws are largely German and French, because those countries manufacture a cheap and simple model, with fixed blades. Saws with interchangeable blades are also made in Germany and France, but most saws of this type sold in Chile are of American origin. The length of blade is from 28 to 40 centimeters, or, roughly, from 11 to 16 inches. More detailed information may be obtained by consulting the catalogue of the German firm of Goldenberg, item 535, discount 16 per cent, as well as the catalogue of Peugeot Frères, item 322, discount 20 per cent. (These may be examined at the district offices of the Bureau of Foreign and Domestic Commerce; see p. 174. Refer to file No. 948.) The discounts mentioned do not necessarily apply to all saws, nor to all merchants, but are records of actual sales made to certain hardware dealers in Santiago, Chile.

Pruning saws are generally of French and German origin, are very simple and rough, and generally have a handle similar to that on a pistol. The teeth turn toward the butt and the blade is curved. In lengths of 12 inches these saws are sold as low as 97 cents, net, per dozen. They are used largely in the country for pruning vineyards, which are very numerous and form an important part of the agricultural activities of the country.

Metal saws are used to a greater extent than the number and distribution of the various industries might indicate at first glance, owing to the fact that labor is cheap and rather rough and careless. Breakage is very common, and very little labor-saving machinery is used. Where most work is done by hand and carelessly, it is not unnatural that a cheap article should be preferred, and this is, in fact, the case. Two American firms compete admirably in the 8 to 12 inch sizes. It will undoubtedly be necessary to compete in the cheap line for some time to come, because of the very low cost of the German article, which in spite of lower quality enjoys a good demand by reason of its appearance.

Meat saws used in Chile are usually from the United States and have blades of 20, 22, and 24 inches. A small number of English

make (Spear & Jackson) are sold, the quality being about the same as the American article and the price higher. There is a large consumption of repair blades, which are also more likely to be of American than any other origin, although the English type enjoys a good reputation and brings about the same price. It is interesting to note in this connection that, in many parts of Chile, the law prohibits the use of axes for the purpose of cutting bones in meat, because of probable splintering and the consequent danger to the consumer.

HAMMERS.

The United States sells about 45 per cent of the hammers used in Chile, and it may well be said that, among all those sold with the handle, the North American product will have the preference as to general quality, even though the competing hammer head may be equal in every respect. This is due to the fact that a considerable strain is thrown on the handle where it joins the head, and in the event that an inferior wood is used it may be expected to break within a reasonable length of time. The use of hickory, which is peculiar to North America, obviates this danger and the result is that practically all artisans, carpenters, or skilled workmen ask for the American hammers and practically all the tradesmen carry them in stock.

The above general remarks are particularly applicable to the *carpenter's hammer*. The European competitor even goes so far as to refer to his products, in certain cases, as being of "American" type, but even so their acceptance is not general, because of the poor quality of the handle. The model generally preferred is one having a head of about 1 inch diameter and sold at the factory for \$4 to \$5 per dozen.

Farriers' hammers of a type weighing about 10 ounces are generally used and have a claw for drawing nails. These are not ordinarily from the United States, because, as a certain dealer states, "the European article is cheap and simple and seems to satisfy the local workman." The writer has consulted the catalogue of one of the well-known American manufacturers, and can state that the European article is, at the most, only about 8 per cent cheaper; and from observation in the shops he is convinced that it is decidedly inferior. Because of these facts he feels that if the American manufacturer is not getting a reasonable amount of business from the 485 blacksmith shops, the cavalry, and the thousands of farmers, it is not because of any deep-seated difficulty that can not be overcome. The real net difference in cost at point of shipment, or at the factory, hardly amounts to more than 2½ cents per 10-ounce hammer with handle. Many blacksmiths, and most farmers, are somewhat careless as regards the appearance, and even the convenience, of their hammers, and it may be said that there is no real type of farrier's hammer used in Chile except in the army. As a general thing, the local blacksmith is satisfied with almost any hammer that has a head of about three-quarters of an inch and a claw, for farrier work.

Blacksmiths' hand hammers are likely to be of the North American type. The cost at the factory is little, if any, more than in the case of other countries, and the American handle is preferred. However, most blacksmiths in Chile are apt to use the machinists' ballpeen

hammers of the heavier types—from 20 to 24 ounces. The mechanic's ball peen is sold in nearly all sizes, and in appearance there is no need of improvement in the American article. Certain English hammers, sold by John Yates & Co., of Birmingham, are said to shade the American price a trifle—at least in the heavier sizes, at 9½d. (\$0.185) per pound, without handle. The uses to which this tool can be put are so numerous that it is a favorite with nearly all kinds of mechanics, and there should apparently be an unusually large sale for it.

Brick hammers are seldom, if ever, imported, as the blacksmiths make them locally, selling them for about \$1.46 per dozen, without handle. The temper is apt to be very poor, and the finish as rough as it could conveniently be, but the hammer seems to fill the present wants of the mason. The fact that an enormous percentage of the so-called masonry walls are made of sun-dried adobe has undoubtedly had a good deal to do with the selection of this tool. Also, the bricklayers are not, as a rule, very well paid, and the art is practiced in a rude way. The introduction of American brick-making machinery, with the consequent improvement in the appearance of the wall, in the few brick buildings, will tend to increase the demand for neat work, with the use of better tools. The improvement in the exchange rate also will apparently cause a decrease in the cost of the imported hammer, and it may be possible at such a fortunate time to introduce modern tools for the mason.

Iron or steel wedges are made locally, generally from material that would otherwise be lost or at least sold for a very small sum. An imported article of this kind is practically unknown unless about the works of some of the big foreign corporations that import their tools, at times, in considerable quantities and direct.

Tack hammers are almost entirely of German origin, being manufactured by Peter Ludwig Schmidt, of Elberfeld, and those with head diameter of 8, 9, and 10 millimeters (0.31, 0.35, and 0.39 inch) are sold at the factory at \$2.11, \$2.53, and \$2.68 per dozen. There are cheaper grades, but this seems to be popular. The butt of the handle is preferred in wood, but the shank is generally a part of the head, at least for half the length. Since tack hammers are available in the United States at prices as low as \$0.50 a dozen, there would seem to be no reason why American manufacturers should not compete easily.

Riveting hammers are generally of the ball peen type, in small sizes, and the French article seems to have the best sale. In the sizes having a head diameter of less than seven-eighths inch the French hammer of Peugeot Frères is generally cheaper, but in the larger sizes the German make of Goldenberg costs about the same. There may be hammers for this purpose in the United States that are as cheap and as simple, but the writer has not seen them. The one generally used has every appearance of being made by a blacksmith, with no finish whatever, and the handle is of the most ordinary wood. As an indication of the quality, it may be noted that the one with a head of 1 inch, without handle, is sold for \$1.16 per dozen net. This hammer is not included among those illustrated in figure 4, but several of the other hammers are shown there.

Shoemakers' hammers are used in most ordinary types. They come from various sources, but the German article has obtained a very strong foothold, chiefly in the make of Schmidt. Two curved

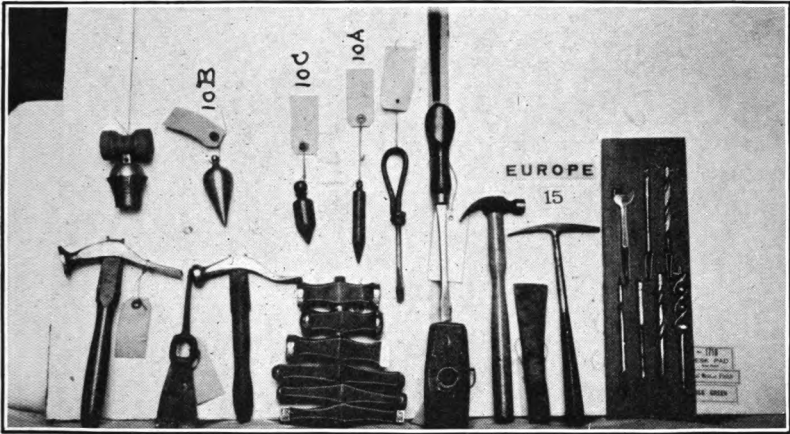


FIG. 4.—HAMMERS, PLUMB BOBS, BITS, ETC.

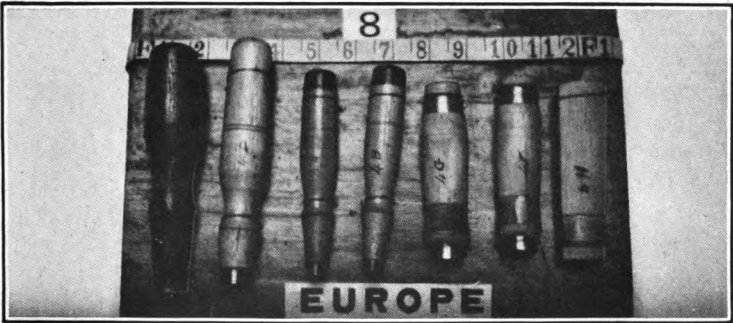


FIG. 5.—TYPES OF HANDLES USED IN CHILE.

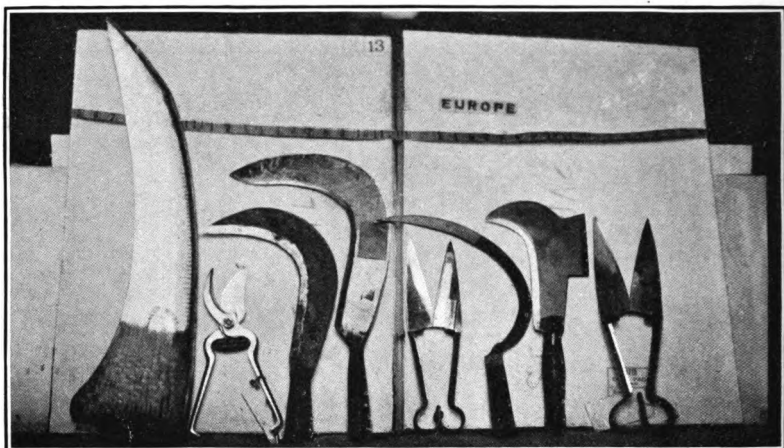


FIG. 6.—SCYTHES, SICKLES, PRUNING AND SHEEP SHEARS.

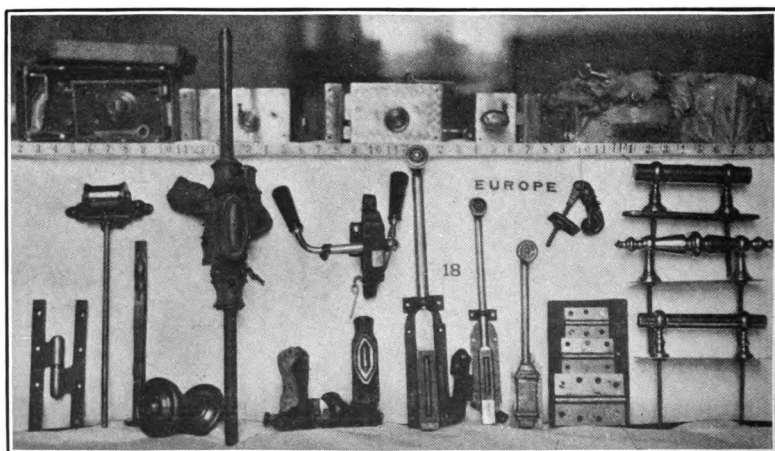


FIG. 7.—VARIOUS KINDS OF BUILDING HARDWARE.

samples are shown in figure 4. The net factory price on these tools is from \$0.85 to \$1.10 per dozen.

Tinsmiths' hammers are used in great variety, with the German article holding the strongest position. Since they are used to shape the tin and thin iron sheets used by the smiths, the faces are well polished, and all sorts of weights, shapes of heads, and general forms are in demand. Practically all this kind of work is done in individual shops, and the result is that nearly every tinsmith has to have a considerable amount of money tied up in tools. The average weight of each hammer is about 1 pound, although other weights are sometimes sought, especially if the smith has a relatively large amount of thin sheet iron to work. Buckets, kitchen utensils, gutters, and an infinite variety of articles are produced. One of the surprises of the foreign housewife who comes to Chile is that pie tins can not be found in the stores, except in the rarest of cases, the tins or plates being made to order by the smiths. Some of these hammers are sold net, factory Germany, as low as 1 mark (\$0.238) each, without handle. Certain samples of these hammers are shown in figure 4.

HATCHETS AND AXES.

In the Chilean statistical tables hatchets and axes are grouped together, the only division being between those used by artisans and those for agricultural purposes. As in the Chilean tariff practically all tools, for customs purposes, come under the single heading "Tools," the above division is merely made for statistical purposes and its dependability might be questioned. In 1913 the United States sold only 11 per cent of the agricultural hatchets and axes, but 60 per cent of those for artisans.

Shingling hatchets are used almost entirely for cutting kindling and for kitchen use. Practically no houses, except to a limited extent in the south of Chile, have shingle roofs. The most common hatchet is the 4-inch model, though the 3½ and 4½ inch are also used. The American model of this hatchet is in demand, but the price, even of the lower grades, is too high. The German firm of Peter Ludwig Schmidt, taking advantage of this preference, makes a so-called "American-pattern ax, medium quality," which in a 4½-inch size costs \$6.56 net per dozen. The English firms of Spear & Jackson and William Edwards & Sons also sell this hatchet. The latter have a very good reputation and sell at relatively low prices. They specialize in agricultural implements and machinery. Their No. 2, "second-quality" shingling hatchet costs \$3.91 net per dozen.

Half and lath hatchets are not used in Chile.

Claw hatchets are used for the same purpose as the shingling model, but are preferred because of the convenience of the nail claw. It must be repeated here that even the cheaper grades of American models are undersold by European competitors, and the latter makes are therefore preferred.

Broad or bench hatchets are used especially by carriage makers. They have only one bevel, and those of the better quality are sold. The most important sizes are 4½, 5, and 6 inches on the cutting edge.

Flooring hatchets are used very little, the broad or bench being used instead.

Mountain axes with a round eye are widely used in Chile, especially in the south, for cutting timber. Several factories make a distinct model for the local trade. It is imported chiefly from the United States, although it is also brought from England, Sweden, and Germany. The usual weight is $5\frac{1}{2}$ pounds, but the 6, $6\frac{1}{2}$, and 7 are also sold. The English firm of William Edwards & Sons makes an ax, somewhat similar to the American, that is designed especially for the Chilean trade and is called "Concepcion," after a town in southern Chile. Spear & Jackson also make practically the same thing and call it the "Chilean model." But in spite of the special efforts made by firms in other countries, the American model is locally considered to be the best and is most largely sold.

Hunters' hatchets—so called, though they are not used by hunters—serve for chopping kindling or firewood and for kitchen use. They come principally from the United States and England.

Ice axes are practically unknown in Chile. Meat markets do not use ice. Milk is generally sold as drawn from the cow, stables being scattered throughout the towns and cities. Only a few foreigners—or, rarely, a traveled Chilean—have ice boxes, although small American ice-cream freezers are of late being widely introduced and have been used to a limited extent for years. The type of the latter that seems to be most prominent in Santiago at the present time is a well-known make from the United States.

In connection with the market for ice picks or axes, it may be stated that scant attention has been given in Chile to artificial refrigeration, either by the Government, the Agricultural Society, or institutions such as hospitals.

WRENCHES.

Monkey wrenches.—An important fact with regard to monkey wrenches, and other wrenches resembling them, is that the Spanish name for them is "llave inglesa" (English wrench). It is not surprising, with such an advantage in their favor, that the English makers should have a good share of the business, especially when one considers that their article is a good one and their prices are reasonable. Notwithstanding this fact, however, the American make is the one most used, because of the facility with which it can be handled, the class of material in the tool, and the satisfactory price. The Germans make models very similar to the American, but the quality is much inferior and only the poorer class of workmen will buy them.

The French and Belgians also make a few wrenches that are held in high esteem. These are made of good steel, sometimes have two mouths or openings (the opening is always large), and generally have the screw in the center of the handle and running the full length. As just noted, they are held to be good wrenches, but cost too much. The American type is as satisfactory and is sold for less. The Alsations make a number of very cheap alligator wrenches, and the same article is produced in northern France, near the German frontier. From this vicinity—that is, Alsace and Doubs—are brought models made of cast iron that are cheap, admired by the amateur, and sold in considerable quantities.

Pipe-cutting tools.—As regards the market for pipe-cutting tools, it may be stated that in Santiago little pipe is used over 5 inches in

diameter, except by the gas company, which uses cast-iron pipe. Practically all the threading or cutting is handwork, although some machinery for power operation is sold for railway or mine use. Almost all thread is English. About the only American thread used is introduced by the larger American companies, who later have considerable difficulty in getting tees for repair work.

The principal demand for hand tools in Santiago is for a low-priced article. The economy that might result from the saving of time is not so important there as might be expected, because the mechanics receive only \$0.75 to \$1 per day. The head of one of the large houses states that there is normally a fair demand for low-priced, ordinary threading and cutting tools, and that very little pipe is sawed. He adds that he has never been able to sell cutting tools worth more than \$7.50 at retail. At present there is very little demand in Santiago.

Another large house states that it buys both power and hand tools from the United States, and that it handles American pipe and gas fitters' tools, for which there is a steady normal demand. A third house in Santiago buys a reasonable amount of pipe from an American firm, generally $\frac{1}{4}$ inch to 2 inches in diameter, and has a light demand for larger sizes, as it sells to journeymen gas fitters. It also handles a fairly large number of cutting and threading tools. American tools of the cheaper grade are said to compare favorably in price with those of Europe.

If an effort is made to change from English to American thread, enormous stocks of fittings must be carried in Chile. The difference is so slight that a connection can be made, particularly on small pipe, by jamming the threads, but the threads are ruined for any further use and such a connection is difficult to break. To change from the English to the American standard would, of course, be exceedingly expensive to large purchasers, such as the Government railways or the nitrate establishments, but it might not be difficult to introduce American thread in isolated localities, such as a given nitrate "oficina" at the time of opening the work, or a new gas plant for Punta Arenas, if it were found desirable to establish one there. It is thought that considerable success might be achieved by an energetic campaign, first among farmers or in outlying districts and then among the bigger properties, provided the action were taken when the sales could be made to cover the expense. It is not probable that any large orders will be placed in the immediate future.

REPORTS FROM CONSULS ON MARKETS FOR THREADING TOOLS.

The American vice consul at Valparaiso states that little pipe-threading machinery is imported into that district. Only 1 new American and 10 old English machines are found in the city. Steam and gas fitters' tools have been supplied generally by the United Kingdom and Germany, but the market will probably be limited. The American consul at Punta Arenas has informed the writer that there is a limited sale in his district for fitters' small-sized, hand-operated tools for threading and cutting steam and water pipes, but that the opportunity is confined to the city of Punta Arenas, of 17,000 population, where, under special concession, import duties are not

collected. Only occasional requests are received for power-operated tools. There are three foundries, but no gas works, in the district.

In the Iquique district, the American consul states, there are 170 nitrate plants, each of which has its own machine shop. Each coast town also has machine shops in addition to those of the railroads, gas and electric plants, and waterworks. Considering the population, the district requires a large number of pipe threading and cutting machines and steam and gas fitters' tools of all sizes, both hand and for power operation. The largest threaded pipe used there, 10 inches in diameter, is employed by the fuel-oil companies in the shore lines to the tanks.

While a few of the smaller tools in the Iquique district have come from the United States, a large part of the heavier machinery has been obtained from the United Kingdom and a smaller percentage from Germany and Belgium. The English developed the nitrate industry and hold nearly all the concessions for the public utilities. One nitrate plant is fitted out with American machinery, and another, belonging to an American company, probably has American equipment. All the others have European machinery.

In studying the available market for pipe-cutting tools, it must be borne in mind that only a part of these tools are shown in the classification of wrenches on page 34. This importation record does not include any pipe-threading tools, which are used in fairly large quantities, considering the population of the country and the other tools used. It is not improbable that the greater part of these are included under the heading "Sundry tools."

Wagon wrenches are used on carriages and oxcarts. Properly speaking, there are very few wagons used in Chile, but there are an exceptionally large number of coach and cart builders and each of these has a reasonable assortment of wrenches. It is difficult to determine the quantity of each kind of wrench used, except by the most crude estimates from comparisons with other tools sold. The salient facts are that practically every farmer and business house has a conveyance of some kind, that there are carriages for hire everywhere, and that wrenches are used. Since these are of cheap construction, it is quite likely that both England and Germany would ordinarily be in a position to compete easily, as regards both price and quality. The fact that the United States sells two-thirds of the wrenches used in Chile makes the discussion of prices and quality virtually unnecessary, except with reference to such details as have been mentioned above.

SLEDGES AND MAULS.

In the United States and in certain other parts of the world it is not unusual, particularly among persons not directly interested in the hardware trade, to refer to a beetle as a maul. This confusion should not occur in the study of the Chilean records. The imports do not include wooden mauls to any great extent, since there is a plentiful supply of cheap native wood, suitable to a limited degree for such purposes, in the only section of the country where wooden mauls would be used. The records include sledges, mauls of iron (or what one might term stone-breaking hammers), and iron hammers in general that are used for striking purposes, as distinguished from

those small and peculiarly formed hammers that might be used by masons, carpenters, or other artisans.

The German catalogues that have been available to the writer indicate in every case that the German heavy hammers are of a higher price than what may be called the standard English product. On the other hand, the samples seen in the various stores indicate that the German articles are generally of a better quality and worth more money. They are, however, designed for particular uses; as, for example, the blacksmith's striking hammer, or those with rounded and polished heads for breaking stone to line, for splitting granite, and similar purposes. The French article is also of special quality and of a higher price. It is really surprising to note that, according to the official statistics, Germany has sold almost half the amount imported in this line, though the dealers insist that the English hammers are notably cheaper. The great demand for a single given class is, of course, for mining purposes, these hammers being used in drill striking, in handwork, or in breaking ordinary stone for concrete. Those made by William Edwards & Sons are sold at the factory without handles, at 23s. per 112 pounds, discount 17.5 per cent (or, say, net \$4.12), for sledges running more than 4 pounds each. The owner of the "Mono" mark also sells a reasonable amount of these hammers. The English make is generally square-headed and the German round-headed. The German or Alsatian makers generally sell with handles in a separate bill and in weights running from 10 to 25 pounds.

The best-known German mark is generally called a French model, because at one time the factory was French and the French customs are still continued, even to quoting in francs. The blacksmith's heavy hammer, running over 10 pounds, with one face, round or oval eye, is quoted at the factory at 82 centimes per kilo, or 0.072 cent per pound.

The actual importation from the United States is hardly 6 per cent of the total, and may be due to the not unusual custom of buying a few expensive things to fill a complete order when those particular articles would not be purchased alone. The relatively low price of the English hammers (which appear to be satisfactory to the purchaser), when compared with the prices charged in the United States, seems to afford an adequate explanation for the preponderance of British sales. The writer does not feel satisfied personally that hammers can not be produced in the United States as cheaply as in England, and he believes that a careful study of American production costs might advantageously lead to economy in the manufacture of this line.

Samples of hammers are shown in figure 4.

PLANES.

This class of tools comes principally from Germany and the United States, these two countries supplying almost exactly the same amount in value, though the Germans sell more numerically. The adjustable plane is a type in which the United States undoubtedly excels, and an excellent reputation is enjoyed in Chile. Even in the cheaper class of planes that are used by amateurs and the poorer class of laborers, the American manufacturers compete very satisfactorily

with the French, both as to price and quality, but seem to experience difficulty in meeting the prices of the German manufacturers. The one general factor that favors the use of the American article is the high quality of the wood used in the body of the plane. This factor is favorable to the United States in almost every tool that requires the use of wood, although in planes the French also take advantage of their supply of such material as the sorb apple, the pear tree, and other hard white fruit trees. The finish of the French woods is generally in the natural color. The demand for the French planes is small because of their high price. Practically the only persons calling for them are artisans from France or the Basque Provinces, who probably use them because of sentimental reasons and early training.

As regards the prices of the German and American makes, there has been some difficulty in arriving at fair comparisons, because the German makers generally quote separately the frame, or box, and various classes of irons, while the available American catalogues do not. There are at least three American makers whose planes enjoy an excellent reputation in Chile, but up to the present time they have not been able to control the market, because of the cheap varieties of German makes that come in. As regards the price, however, it seems to be a matter of not more than 10 per cent in certain varieties. In one case, for example, the cheap and simple German frame .17 inches long, plus the cost of the best double irons, is quoted at \$0.60 net. An American type very much like the German one costs \$0.70 net, but has a *lignum-vitæ* starter that the German make lacks. Another American house quotes \$1.30 for an 18-inch and \$0.95 for a 15-inch size, but the cutting parts are adjustable, the workmanship is far superior, and the finish on both the American articles is all that might be desired. Obviously the three types of planes are not the same, and it is to be expected that the better quality would cost more. The point that the writer desires to make, however, is that it is difficult to secure as cheap a plane from the United States as from Germany, and there are so many people who want a cheap plane, even if it is not so good, that the German factories sell 46 per cent of the Chilean imports, and the manufacturers of the United States, who apparently should do much better, sell only an equal share. If the Germans were to make a good article of first-class material and adjustable types, they might make serious inroads into the American business, and if the Americans were to make a cheap type they could undoubtedly divert a part of the German trade to the United States.

One must consider, in this connection, an ever-recurring problem. Shall the manufacturers make two grades, good and fair, or shall they confine themselves to the good and let the second and lower qualities be sought elsewhere? Wherever the writer has traveled, the American manufacturer enjoys an enviable reputation for quality of output, while manufacturers of other countries have not been so fortunate in this respect. The fact deserves emphasis, however, that it might prove profitable to some makers to build what the customer wants and sell it under another mark, even if such a practice is not in strict accord with the standards of their factories. It must be acknowledged, of course, that it is hard for one given factory to turn out several grades, although European makers do it. Or,

again, it may not be advisable in all cases for one wholesaler or jobber to handle two grades. But a considerable volume of business unquestionably awaits the factory that will cater to the poorer class of workers in all the Americas southward from the Rio Grande and the north shore of the Gulf of Mexico. Competition will be keen, but it can be met. The decision involved in a choice between low price and superior quality is difficult at times, and the argument of quality is certainly the most effective and permanent one. Even while we recognize the desirability of satisfying the less exacting requirements of certain foreign fields, we may justifiably stress the fact that the quality of American tools is such that it is doubtful whether the manufacturers of any other nation will be able to surpass them.

The most popular models of planes, if one takes the Ogontz as a type, are: No. 3, wood smooth planes, 2 inches; No. 13, wood jack planes, $2\frac{1}{4}$ inches; No. 27, wood jointer planes, 26 and 28 inches; No. 99, wood match planes, pair, $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{3}{4}$ inch; No. 146, wood rabbet planes, $\frac{1}{2}$, $\frac{3}{4}$, 1, and $1\frac{1}{4}$ inches; No. 51, wood center beads, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1 inch; No. 47, wood center beads, $\frac{1}{2}$, $\frac{3}{4}$, 1, and $1\frac{1}{8}$ inches; No. 116, wood panel plough and bits; No. 117, wood panel plough and bits. All these models are largely used. This is not true of others, such as molding planes; moldings are made cheaply by machinery.

The fact has been noted that Germany and the United States supply about 92 per cent of the total importation, and that the German make is generally the cheaper. Another point should be considered in this connection, however—namely, that the customs classification also includes irons for planes, and that Germany sells a considerable number of these, while the sale from the United States is very small, being practically limited to the irons that come in the planes. The remaining 8 per cent of the sales is largely made up of irons. The French make of Peugeot Frères, which is held in high esteem and for which there is a reasonable demand, is sold at the factory for the net prices shown in the following table (for purposes of comparison Alsatian prices are also given):

Size.	French.		Alsatian.	
	First quality.	Second quality.	First quality.	Second quality.
	<i>Each.</i>	<i>Each.</i>	<i>Each.</i>	<i>Each.</i>
1 $\frac{1}{4}$ inches	\$0.097	\$0.077	\$0.082	\$0.059
1 $\frac{1}{2}$ inches .....	.114	.089	.091	.065
2 inches .....	.128	.100	.100	.071
2 $\frac{1}{4}$ inches .....	.149	.116	.113	.081
2 $\frac{1}{2}$ inches .....	.164	.128	.124	.089
2 $\frac{3}{4}$ inches .....	.180	.140	.133	.095

To this cost is added about \$0.28 per hundred if the irons are perforated. These are the best quality of irons put out by the above-mentioned French house. In the medium grade, John Yates & Co., of Birmingham, England, makes a lower price than the French, but not as low as the German. The first-quality grade put out by Peugeot Frères, in double irons, with a short screw (which is preferred to the long screw), and for the same sizes mentioned in the table above,

costs, respectively, \$0.199, \$0.214, \$0.24, \$0.264, \$0.292, \$0.315 each, net at factory. The additional cost for long screws may be determined by adding 11.35 per cent to the short-screw price for the French article; the second quality is about 22 per cent cheaper than the first quality. The table indicates that the best-quality German is even cheaper than the medium-quality French; but this, after all, means little, because the standards of quality are not necessarily the same.

Scraping planes are sold in Chile by Alsatian, Birmingham, and French manufacturers in limited quantities. All these firms make about the same model, having a 6-inch cutting or scraping blade, which is black; the handle is sold with it. The respective net factory costs are \$0.277, \$0.262, and \$0.197 each. The French pattern, being satisfactory and of good quality, as well as the cheapest, has the best sale among the three considered.

Owing to the fact that American manufacturers already sell the major part of the better planes, and would probably have to reduce prices considerably to sell the medium and poor grades, only a few samples of planes have been secured in connection with this report.

Dado planes need not be discussed at any length. Molding comes prepared by machine, and little use is found for highly specialized tools. Occasionally some are sold, but the market is not great and the source of bench, jack, and rabbet planes will determine the source of the smaller types.

The iron block plane is used in very small quantities.

SQUARES.

Squares are not used to any great extent. Only a relatively small percentage of the native laborers throughout Latin America come anywhere near taking advantage of the various uses to which this tool can be put, especially when compared to the purposes it serves for the American workman. Those who use the greatest number in Chile are the carpenters and stonecutters. The low-priced, polished-steel model comes from the German firm of Schiettrumpf, of Jena, and is the second grade made by that factory. The United States sells about 40 per cent of the total number represented in the statistics. This is not the entire number used in the country, since some are imported under other classifications.

The principal forests and lumber supply of Chile are in the southern part of the country, where the majority of the leading merchants are German, and it is there that the few good wooden houses are built and carpentry is most efficiently practiced. There is no reason why the American maker of squares should not be able to compete satisfactorily as to price, especially as regards the better grade, and the superior quality of the first-class American squares over the best product of the European factories is unquestioned. A difficulty in increasing the market, however, is that the laborer of Chile is poorly paid and does not have the same incentive toward efficiency that the American laborer has. However, the class of workmanship is slowly improving, and it is thought that a single-leaf advertisement might be prepared by an American maker of squares, containing the advertisement of his trade-mark, his factory address, and a blank space for the insertion of the name of the dealer who handles the article. On this sheet could be set forth a few of the principal advantages of

American marked squares, showing how various angles can be cut and how mathematical problems can be solved graphically. These sheets should be prepared on stiff cardboard, to be hung up in the shop, and the text should all be in Spanish. It is thought that this sort of advertisement might be used to advantage in the manual-training school, and copies might be given to the dealers for distribution.

Among the small squares, one with one arm of wood and the other of steel, 4 by 6 inches, and selling at 18.5 cents net, European port, is a popular model.

Drawknives will be discussed under "Carpenters' tools."

BRACES AND DRILLING MACHINES.

This classification includes the braces, commonly so-called, such as ratchet, breast, corner, etc., as well as breast drills, or small drilling machines, usually clamped to a bench with a screw for drilling metal or small odd-shaped pieces of wood. The decision as to whether a certain tool is a hand drill or a machine drill is sometimes difficult, if the hand-drilling machine weighs, for instance, 10 or 12 pounds. It is important to make it very clear, whenever possible, that the article is a hand tool rather than a machine, because in the former case the entry is free and the inspection is merely a matter of form, while in the latter case the import duty is \$0.33 per hundred pounds, gross weight, and the inspection is necessarily made with greater care, increasing thereby the amount of time spent in getting the articles through the customhouse. The total importation of this item is valued at \$12,700, of which Germany sells \$8,500—almost entirely in Talcahuano, or Concepcion, and the southern part of the country. The first-named place is the port for the latter and also for a considerable territory in the agricultural and lumber section. About \$2,500 worth are sold annually in Valparaiso and the remainder in the various other ports. As is true of many of the imports into Chile, much more goes to Valparaiso than is used there, that city being a forwarding and outfitting point for many small ports and industries. An occasional order for braces is placed with France or Belgium, but the total of their business in this line is not worth considering. The small sales they make are principally hand drills.

The hand drills or drilling machines of the United States and England are almost exact counterparts of each other, and both enjoy a reasonable share of the market. As regards braces, however, there is little competition against the American makes on the part of the British factories. The German firm of Peter Ludwig Schmidt sells a brace for \$0.095, in which the chuck, if it may be called such, consists of nothing more than a square hole and a set screw. Another, having a $\frac{3}{4}$ -inch shank diameter, 8-inch sweep, with an ordinary simple jaw, and polished wood, is sold at a net factory price of \$0.183, and, if nickel plated with the wood finished to resemble rosewood, is quoted at \$0.27 each—this being the type that competes with the cheaper English article. It is obvious from the prices shown that the American factories can not compete with the cheapest German make in a tool to be used by a workman. The low-priced varieties mentioned might conceivably be found in a boy's set of tools in the United States. The 8-inch English model made by Spear & Jackson, which is almost a duplicate of the \$0.27 article referred to above, is sold at any

English port for \$0.305 net, while the 10-inch size costs \$0.345. The same article may be had from an American factory, but with a somewhat better finish, for \$0.25 to \$0.32 net; and in the better class of braces having alligator jaws and covered ratchets, and those having washers between chuck and frame, the American type competes with ease both as to quality and price. Where certain European competitors do put out a good article, they are very apt to refer to it as the "American model." In the cheaper breast drills with two velocities, for mechanics, the English price is about \$1.70, the German \$2.08, and the American \$2.15. This will indicate approximately the competition as regards price. The European model, however, carries the designation "American pattern," which assists in making the sale, since the American standard is accepted as quite all right.

In the so-called Archimedean, or centrifugal, drills, all sorts of models are sold. The users are principally mechanics of precision, such as pattern makers, jewelers, or workers in art goods, and the sale is so small that the articles are generally bought wherever the merchant happens to be placing an order for other things, or are purchased direct by the users and delivered by mail. The prices at which they are sold are conventional, depending on the class of store making the sale. The most common sizes in Chile are from 10 to 14 inches long.

Corner braces are used very little in Chile. The workman generally uses a ratchet drill for this purpose. One retailer stated that he brought some out from Germany at a net cost at the German port of \$1.40—this model having an 8-inch sweep, $\frac{1}{4}$ -inch shank, length 22 inches, and neat rosewood finish—and that he sold one in a year. Had it not been of a fancy appearance, he probably would not have sold that. The few stores that are able to handle these things at all are those catering especially to the foreign (principally American) mining companies.

Ratchet drills for boring iron, of late model and of good pattern, are used to a considerable extent, and come from the United States, Germany, and England. They are, of course, used somewhat by the individual artisan, but are sold almost exclusively to the railways, shops, and iron and steel contractors, for drilling rails and beams. The English firm of Spear & Jackson sells an extra-strong 12-inch type for \$2.01, and makes an additional charge of \$0.21 per inch for longer ones. A well-known German firm sells an article, which to the amateur would appear almost as good as the English or American, and the price is almost exactly half that shown above. If interchangeable from left to right movement, the German model is increased in price about 20 per cent. The construction of the German article is exceedingly simple, and the movement is hard. This point, however, is not important to the buyer whose first thought is price and whose use for the tool is relatively small.

In bits for drilling wood, the American patent solid center stem is rapidly replacing practically all the competing lines with the possible exception of those sold in Talcahuano. A few of the old models are chosen by the purchasers of small means, or by amateurs, and there is a fair imitation (as regards appearance) produced by certain German factories, but sold at a price varying from 20 to 30 per cent higher than the American model. It is true, of course, that cheaper bits for boring wood are available, one German factory in particular (Peter Ludwig

Schmidt, of Elberfeld) selling $\frac{1}{2}$ -inch bits as low as \$0.60 per dozen, but it does not seem necessary even to discuss their quality. The English prices are as high, generally, as the best-grade German, which are, as above noted, considerably more than the American. The quality of the English type is very good.

AUGERS AND GIMLETS.

About 50 per cent of the imports of these articles are into the ports of Valdivia and Talcahuano. It is in these sections that the German interests are most prominent, and the manufacturers of that country have little difficulty in holding the market. The Germans sell about 54 per cent of the total amount imported into all Chile, so it is obvious that their sales must be relatively less in the central and northern sections of the country. As regards the market in that portion of Chile less affected by European immigration, the Americans easily lead and sell about 50 per cent more than the British makers, their strongest competitors.

Probably the best-known type of two-handed auger sold in the central part of Chile may be described thus: Blacked in the twist, polished edges, cast steel, standard quality, twist 7 to 8 inches, and total length 18 to 24 inches. The English auger is very similar and enjoys a good reputation. This particular tool is used in opening holes in wood for the purpose of placing bolts, and because of this the sizes generally sought are $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, and 1 inch. The $1\frac{1}{2}$ and $1\frac{3}{4}$ are in much less demand, and sizes above that are rarely sold. There are, of course, cases where a workman prefers to bore a hole $\frac{1}{32}$ or $\frac{1}{16}$ greater than the bolt diameter, but this would only be for certain framing where a slight play in the bolt would not be objectionable. In general it may be said that the English tool is the most expensive, the German next, and the American the cheapest.

One style that has found very general favor in Chile is the Steers expansive bit, in diameters of $\frac{1}{2}$ to 3 inches. If this article is made elsewhere than in the United States, the maker has not sold very many in Chile as yet, since the workmen all recognize in this tool something strictly American.

Gimlets arrive in an infinite variety, short and long, plain and fancy, cheap and expensive. The German type having the black handle and polished bit, made of a single piece of metal, with the appearance of a piece of wire bent oval on one end and pointed on the other, is the most common. The net price is \$1.67 per gross at any German port. Better gimlets are sold, with a wood handle and double twist, from \$2.41 to \$5 per gross, the latter price being about the highest for an article much in demand.

Gimlet bits are used in small quantities by such workmen as chair makers, especially those who build of willow. The American and Swiss bits are both held in high esteem, but the American is by far the best known. The European make that enjoys the best demand, and does not differ greatly in appearance from that sold in the United States, is sold at any German port for prices varying from \$2.96 to \$4.18 per gross net. Exact comparisons have not been possible because the European and American products are not exactly the same. The general appearance would indicate, however,

that the European maker gives greater value for the money spent, this being a tool in which high quality is not considered.

Countersink bits are principally of American origin. It is true that somewhat cheaper articles are obtainable elsewhere in the case of tools to be used with wood, but there is no appreciable difference in price for metal countersinking bits, and the superior quality of the American article is usually conceded. The demand for center bits is small. Their principal sale is to the vineyard proprietors and barrel makers, in the larger sizes. The German, English, and American factories all sell them. In the $1\frac{1}{2}$ -inch size the European price is from \$0.55 to \$0.63 per dozen, and one very cheap grade is sold in $\frac{1}{4}$ to $\frac{1}{2}$ inch for \$0.25. This type is not held in very high esteem, however, the point of quality being the important one when the tools are to be used by regular artisans. A small collection of European bits sold in Chile is shown in figure 4.

LEVELS.

The Chilean statistics give the value of the total importation of levels for 1912 and 1913 at an average of approximately \$3,500 per year, on a basis of about \$0.25 per pound, including wrapping or container but not the packing case. The smallness of this total is misleading, especially because levels are considered by the dealers as one of the most important articles in stock, one firm selling about the same number of levels as of handsaws. The statistics become clear, however, when it is remembered that assorted shipments of tools are put under the general classification "Tools," there being no import duty on such articles. The statistics show, therefore, only those shipments of cases of levels that include no other article. Of these shipments of levels only, the United States sold only 31 per cent, Germany selling nearly all the remainder. This condition is consistent with the fact that the German product of the cheaper grade is in general use and can therefore be shipped in large quantities.

The German prices are very low, and the product is of good quality and appearance. A comparison of the prices of the German house of Schietrumpf with those of a well-known American firm is striking. A 20-inch level (No. 6065 of Schietrumpf) sells for 15.60 marks per dozen, with 40 and 5 per cent discount, the net cost being, therefore, 17.6 cents each, American money. A similar American level costs 30.5 cents net. The two models are the same in workmanship, size, and general appearance. It can be stated as a general rule that the German article is consistently cheaper than the American, the variation in some cases being even greater than in the illustration given above.

The most commonly used level is the Schietrumpf No. 6080, of plain yellow wood, with no protecting metal pieces on the sides. It is made from 15 to 100 centimeters (5.9 to 39.4 inches), the most salable models being those 24, 26, or 28 inches long, whose net cost per dozen at the factory is \$2.12, \$2.16, and \$2.20, respectively.

Another similar and very popular model is called the "Constantia" (also made by Schietrumpf). On the lower surface two narrow steel bands are screwed into the wood $\frac{1}{8}$ inch wide and $\frac{1}{8}$ inch from the edges. This makes the plane of the level much more

durable, as it prevents rapid wearing. This tool is made in sizes from 8 to 40 inches, the net price of the 24 and 28 inch article being \$3.25 and \$3.40, respectively.

Besides the levels above mentioned, which are the customary ones employed by carpenters and masons, there are several smaller types in use. The Schietrump No. 6300 is popular for small work and for amateurs, and can be conveniently carried in the pocket. It comes in 6, 7, and 8 inch sizes and is of the simplest construction, the 7-inch retailing for \$0.182. The similar American article costs nearly twice as much. A slightly more expensive model of the same type has the entire upper surface protected with a brass plate. This is not very widely sold—perhaps about half as much as No. 6300.

No. 6360 is made only in the 9-inch size and is used for leveling motors, rough objects, and metal; it therefore has on its lower surface a brass plate covering it entirely. The tube is visible on three sides, this fact making it very convenient. It costs \$2.36 per dozen.

No. 6335 of the same firm is heavier than the levels previously described, having vertical and horizontal tubes, and the upper surface covered by a brass plate. It is used by carpenters and masons in small work, but is not much sold, since the larger types, 24 and 28 inches long, are preferred. The 8, 10, and 12 inch lengths cost \$1.80, \$1.96, and \$2.19, respectively.

The most popular and useful of the smaller levels is called the "London," being the Schietrump No. 6470-128. It is made in many sizes, from 6 to 24 inches, and has vertical and horizontal tubes with inches and sixteenths on one side and centimeters and millimeters on the other. It is worthy of note that the metric system is the one commonly used in Chile, but the inches are necessary, especially when working with imported materials. The 8, 9, and 10 inch sizes cost \$2.98, \$3.05, and \$3.13, respectively. These prices are relatively high, but the model is well received.

MECHANICS' LEVELS.

The Schietrump No. 6600-123 is a small level especially used by mechanics for generally rough work. It is made in five sizes, the most customary one being 10 inches and costing \$2.04 per dozen. The model is made of steel, with rounded ends, and has a brass plate on the upper side. It is also brought in with a nickel-plated top, but this model costs 50 per cent more, has no additional advantages, and is not bought by workmen.

No. 6860-121 is a very solid model of steel, with square ends, and is used by mechanics and machinists. The tube can be seen from three sides. This level is made in four sizes, but it is not used to any great extent. The most common size is 8 inches long and costs \$5.49 per dozen.

Brass levels in zinc boxes are widely used. They serve for nearly all purposes, are well presented, and are comparatively cheap. They are made in two grades, the cheaper being of a slightly lighter construction. The sizes are between 4 and 12 inches, all of these being generally used. The 4-inch model of the better grade costs \$2.20 per dozen and the 12-inch \$5.10. There are eight sizes. The custom-house statistics include the weight of the zinc box as though it were

a part of the level itself. The level comes from the firm of Schietrumpf, and the catalogue number is 7040-125. The level consists of a flat brass base with the spirit tube also of brass, about $\frac{3}{4}$ inch in diameter, supported by two brass pieces $\frac{1}{4}$ inch above the base. The instrument presents a very neat appearance.

A small pocket level, No. 7025, 4 inches long, nickel plated, is very salable. It costs \$1.57 per dozen.

Mechanics' levels No. 6835 come in five sizes, although only three sizes are sold to any extent—that is, the 24, 30, and 36 inch. The 6-inch and 9-inch are made, but are not used in Chile. The prices for the first three are, respectively, \$0.65, \$0.95, and \$1.05 each, and they have tubes at both ends and in the center.

Transmission levels No. 6820 come in a wooden box and are sold mostly in the 10-inch size, those of 8 inches and 12 inches being little used though available. The cost of the 10-inch type is \$13.35 per dozen. A cheaper tool is gotten out by the same factory (Schietrumpf), also offered in a separate wooden box, and sold at any German port for \$11, net, per dozen.

MEASURES.

The standard of measure in Chile is the meter, but the yard and occasionally the local "vara" are also used. Measures, therefore, are primarily metric, but usually include the yard on the reverse side. There are many uses for feet and inches, such as the measuring of lumber, railway gauges, American and English steel and iron, and numerous other purposes. This makes the presence of both measurements a necessity. For 1912 and 1913 the measure business averaged about \$18,500, with Germany securing nearly 70 per cent of it and the United States only about 10 per cent.

The cheapest meter is one of natural wood that comes from France. The customary type, however, is German. There are others painted white, and more expensive and fragile types of bone, ivory, tortoise shell, and whalebone. Meters are known as single or double. The former are 100 centimeters and the latter 200 centimeters long. They are made with 6 and 10 wooden pieces, with a catch arrangement to hold the meter rigid when open. They are 16 and 10 millimeters wide, the former being the cheaper. There is also a model made without the catch arrangement, but it is not used in accurate work. On one side the meters are divided into centimeters and millimeters, and on the other into inches and sixteenths. An average price for a wooden meter 100 centimeters long, 16 millimeters wide, painted yellow, and divided into 10 folding parts, is \$9.74, net, per gross, at any German port.

Steel meters are used by mechanics. Like those just described, they have the meter on one side and the yard on the other. They are 10 millimeters wide and have 10 folding parts. This type costs \$1.72 per dozen, net, European port. Brass meters are also used at times, but have little to recommend them except their cheapness. The demand is small and limited to the poorest workmen or primary students.

The most common type of measuring tape, done up in a box made of fiber or shellac-filled duck, is likely to be of German origin, although Great Britain enjoys a fair share of the trade and the United States

sells some. The importation figures do not divide the tapes and surveyors' chains and steel tapes from the rules and scales, and this fact makes the determination of the market for the individual article quite out of the question. However, it may be interesting to know that an apparently satisfactory article, in the box, is sold f. o. b. European port, at approximately the following prices: 5-meter length, \$4.02 per dozen; 10-meter, \$5.31; 15-meter, \$6.85; 20-meter, \$8.39; 25-meter, \$10.02; 30-meter, \$11.56; 40-meter, \$14.56; 50-meter, \$18.84; and 100-meter, \$33.41. This tape has been used in several of the illustrations for this book to indicate the sizes of the articles photographed. The prices given, which are not considered exorbitant, indicate to the writer that the American manufacturer should have no difficulty in competing, as regards either price or quality.

COMPASSES AND CALIPERS.

The total importation of compasses and calipers for any given year is exceedingly difficult to determine, owing to the fact that compasses for draftsmen are classified under "Instruments for surgical and scientific use," which total \$226,000—Germany selling 56 per cent, Great Britain 17 per cent, France 15 per cent, and the United States 10 per cent. The variety of compasses and calipers used by mechanics is classified under "Sundry tools," or "Carpenters' tools," in certain cases. From conversations with retail dealers, however, various pertinent facts have been gleaned, which, if insufficient to determine the total annual market, will at least serve as a guide to the type for mechanics that is commonly sought by the ultimate users.

The principal sources of supply, as ascertained by visits to retail stores, appear to be France (Peugeot Frères and Bost Frères), Alsace (Goldenberg), and the United States, in the order named. As is usual in the case of many tools, the American product is appreciated because of its quality rather than its price. The average mechanic in the United States would not have on his bench (because of the lack of finish) a tool such as is commonly used in Chile as a compass. So far as accuracy is concerned, that is principally determined by the work on the tool at the head; that is, the setting arrangement must be such that the spread will not vary in transferring a measurement. In that respect the point might be toughened to advantage, though at present there seems to be reasonable satisfaction. Not even the first-class European tool is sold in Chile to any great extent, the principal demand being for medium quality. It is not the intention to include in this text many tables of cost, because many prices are shown elsewhere (see Appendix, p. 177). Merely to indicate, however, the class of compass used, reference may be made here to two specific styles. These are 10 inches long and are identical except that one has a quadrant and set screw. They are of medium quality, and in this grade the list price is \$0.194, discount 34 per cent, or net cost in France \$0.126, for the type without the quadrant and set. If that attachment be added, the net cost, determined as above, is \$0.222 each. The American pattern that most nearly corresponds to this is of a neat finish, has the graduations of the quadrant marked, and would quickly appeal to any workman taking pride in his tools. It costs \$0.50, net, at the factory.

PLIERS AND PINCERS.

These important tools are introduced from many sources, but Germany appears to lead in the larger shipments, if one considers only the statistics. The customhouse record has been given for what it may be worth, but that by no means indicates the total importation of these articles. In the event that a separate box of pliers or pincers is landed, the classification given would indicate the contents, but if the box, generally weighing about 100 kilos, or 220 pounds, contains an assortment, then the classification might be "Tools, carpenters', masons', or sundry." The opinion of retail dealers does not correspond with the statistical indication, their experience leading them to believe that France easily leads—especially as regards pliers and small pincers, as distinguished from blacksmiths', nail pulling, or heavy wire-cutting pincers.

The United States seems to have only about 17 per cent of the business. This is said by a certain retail dealer to be due to the fact that the American models are not adapted to the uses of the Chilean market. This statement, however, may safely be ascribed to sentiment or insufficient knowledge on the part of the merchant, because it is reasonably certain that tools of this class are made in the United States that will serve the needs of any workman. Probably the real reason why the United States has not sold more is the fact that the head of a French house made a trip to Chile, became personally acquainted with the merchants, arranged for handling the business in a manner acceptable to all concerned, and, finally, left an agent in the country to push the sale of his goods. This enterprise and solicitude on his part, together with the fact that his product is generally conceded to be good, conveniently priced, and satisfying to the users, probably constitute the real explanation of the success he has enjoyed.

Two types of pliers that are generally acceptable in Chile are 4 and 8 inches long, pointed, and have a cutting edge on the side. These are the kind commonly used by linemen. The variety of pincers having no cutters, but of a long and slender model similar to the chain nose of American make, is used by many who work in cramped places. The small wire-cutting nippers enjoy a reasonable sale. Pincers and pincer-tongs used by general artisans and blacksmiths are very apt to be of German origin (Goldenberg and others).

All shipments from Germany are not necessarily manufactured there, Sweden producing a very good article that might well be distributed through Hamburg. The commonest sizes are 6, 7, and 8 inches long. These are generally used to draw nails and cut wire. The blacksmiths use, ordinarily, 11, 12, and 13 inch. These must be of good steel, otherwise they are not acceptable, since the cheaper grades require too much attention to keep them properly edged. It is thought that a natural-finish, crucible-steel American blacksmith pincer might compete in price; but if it were made of tool steel with parallel handles and smooth finish, it is doubtful whether it could compete at prevailing prices.

TOOLS FOR CARPENTERS AND COOPERS.

This is a very broad classification in the customhouse usage; it includes most of the articles commonly known in the United States under the same name. The tools used by carpenters and coopers are

placed under one general heading in the Chilean tariff law, but the same law goes on to state that a true description of the articles must be made in each case for statistical purposes. The items that are found to be of special importance are separately reported, and in several cases are separately discussed in this report. Although saws, hammers, and many other items have been considered separately, that does not necessarily imply that the total import figures for that particular tool have been given in the separate discussion. Owing to the fact that the import tax is the same on all tools falling under this general heading, the detailed description of the contents of a box containing an assortment gotten together by a forwarding agent would be difficult, and no great good would be accomplished. It is more than probable that such a box would be classified as "Carpenters' tools" and reported in this list.

One of the salient features of the available data on the use of this general class of tools is that Valparaiso and Talcahuano (the port for the city of Concepcion) are the two places receiving the majority of the total imports. This is true of the former because it is the landing place for one-third of the population, as well as the distributing center for a large territory along the coast, handling the transfers or forwarding by means of little coasting vessels or, in some cases, by the railways.

The Concepcion territory is where the native forests are found, and it is not surprising that 20 per cent of the woodworking tools should go there, nor that the supply should be principally from Germany. Talcahuano does an annual import business that is exceeded by only one Chilean port—Valparaiso. Its exports are exceeded by the nitrate ports, and by Punta Arenas in wool, but Talcahuano exports an amount in general cargo of nearly \$4,000,000 per year, and the percentage going to the United States is so small that in the year 1914 the total fees collected by the American consular agent were but \$367. It is thought by the writer that the opportunities for the sale of American goods in southern Chile have not been sufficiently investigated. There is a well-defined German sentiment in that territory, but it has not been found that sentiment always governs the purchase of material, provided the price and quality of the goods are satisfactory.

Chisels.—In considering the details of this particular classification it has been thought that chisels are perhaps as necessary and common a tool as any used by woodworkers, and these undoubtedly form a considerable part of the \$56,000 or \$57,000 worth of carpenters' tools used each year, though they do not by any means form the total. They are not made in Chile, but they have a wide and varied use there and are brought from the United States, France, and Germany in varying proportions. Those from each country of origin seem to have certain supporters who prefer them to any other. The workmen from southern Europe appear to have a preference for the French make, because of their early training at home, where that type is said to prevail. The fact that the German sales are very great as compared with the French is due more to the commercial activity on the part of the Alsatian manufacturers than to any inherent difference in the product. Not only are the German tools of Goldenberg almost the exact duplicate of those made by the

leading French house (Peugeot Frères), but the catalogues from both sources are printed in French, the prices are quoted in francs, and the Alsatian establishment, being on the frontier and in the same neighborhood as many French factories, employs many French workmen. It is true that the Alsatian prices are from 3 to 7 per cent higher than the French, but it is said that the German manufacturer will pack as the buyer wishes, while the French concern is somewhat more unresponsive in this respect. It is interesting to note that all the complaints with regard to unsatisfactory packing are not directed against the shippers of any one country. The apparently careful manner in which German packing is done, together with a strong selling campaign and a willingness to extend credit to a very large number of clients, may be taken as accounting for the market enjoyed by German tools as well as other merchandise.

It is not the intention of the writer to convey the idea that all the well-known German manufacturers are located in Alsace. There are numerous makers elsewhere, and the leader, perhaps, in the sale of chisels—Peter Ludwig Schmidt, of Elberfeld—is located in Prussia. His prices are remarkably low on the second and third grades, but not on first quality, as compared with the American. There is really little difference in the factory net price on first-grade chisels from Germany and the United States. The American manufacturer can not, however, hope to compete in the poorer grade, such as can be made by farmers during the winter nights.

The continental European chisels are generally tanged, are made entirely of steel, are solid and heavy but do not have the neat finish that characterizes the American product. Many of the American makes have steel only on the cutting face, the body being made of iron, and although this is a perfectly satisfactory arrangement, the ignorant workman is at times inclined to doubt it, not understanding that a remarkably high quality of steel is put on the cutting edge and that a tool made entirely of this quality would be quite beyond his means as well as unnecessarily expensive from any standpoint. The use of the tanged model involves the addition of a band of iron, steel, or wire around the handle at the junction point in order that the "spigot," as the tang is sometimes termed locally, may not split the wood. Of the various handles sold in the Chilean market none is so good as the American, not only because of the satisfactory band used but also because of the quality of the wood itself and the leathering cap that protects it from splitting at the butt if struck. The American handle is not the cheapest, but it is recognized as the best.

There are tanged chisels available at any factory in the United States, but the American model sold in Chile is generally of the socket type. That is often referred to as the American model, even though it be from some other source. This is another of the many points that come to one's attention, indicating the general lack of knowledge of the North American product in any line.

Framing, corner, butt, and slick chisels are used in such minor quantities in Chile that it is not worth while to discuss them. It would undoubtedly result in future benefit if their use could be brought before the workmen, the railroad carpenter and car shops, and the heads of the manual training schools. Such tools are for highly-trained workmen, and the carpenters of Chile, poorly paid and

with little training, have not yet been able to see the economic advantage of highly specialized tools.

Handles.—Various models of handles, shown in figure 5, are sold in Chile. It will be noticed in the illustration that one pattern is marked 4H. This is the German model and is wire bound, the iron-banded ones are French, the two leather-topped ones are American, and the last two on the left are made in Chile. All these handles have been made for use with the tanged chisel—that is, the one having a point entering the handle. Handles are generally quoted separately by the European makers, and the result is that any kind of chisel may have any kind of handle. Since the handle has a bending strain only where it joins the chisel and can be wire or strap bound there, many buyers select a poor handle and put it on a good chisel, not noting the liability of splitting if driving is employed. The American handles with leather-reinforced heads are unique in the Chilean market and the better class of workmen think well of them.

The English makers (Spear & Jackson and others) sell a few chisels, but they are not strong competitors in this line. The English chisels, so far as this market is concerned, are entirely of the tanged type, generally sold without a handle unless this is specially ordered, and they are of good appearance and quality. They are also too high in price to compete satisfactorily with the German or American make.

The foregoing refers especially to the types that have the greatest demand in Chile—that is, the sizes under 2 inches cutting edge, and flat. Many kinds of chisels are used in Chile, as well as in other parts of the world, but it must always be borne in mind that the highly specialized tool can not possibly have the demand there that it has elsewhere, because of the peculiar situation of the workman, his comparatively incomplete training, and the low rate of pay that prevails. Certain kinds of work, however, demand certain kinds of tools, and the firmer and gouges are well known, coming from the sources mentioned. That the mortise chisel is almost entirely of the French model, made by Peugeot Frères, is indicated by the writer's inability to find it in any other catalogue, as well as by conversations with retail merchants.

As regards chisels in general, it may be said that the sizes having the largest sales are the $\frac{1}{2}$, $\frac{3}{4}$, and 1 inch. The sale of socket chisels is confined almost exclusively to the American and English manufacturers, the tanged chisel butt seeming to be the only kind the continental manufacturers care to make. At least half a dozen names of American chisel makers are known to the Chilean trade, and one or two English manufacturers are, perhaps, known as well. A reasonable amount of the English tools will always be sold in Chile because of the manufacturers' long-established relations, credit facilities, and reputation. It may also be remarked that the English tool is of excellent quality, all steel, and the net prices, at any English port, for socket chisels with a hickory handle are as follows: $\frac{3}{4}$ -inch, \$2 per dozen; $\frac{1}{2}$ -inch, \$2.19; $\frac{3}{4}$ -inch, \$2.48; 1-inch, \$2.80; $1\frac{1}{4}$ -inch, \$3.10; and $1\frac{1}{2}$ -inch, \$3.40. If these chisels are beveled, the cost is from \$0.55 to \$0.60 more per dozen.

Chisels used by stone engravers or sculptors come almost entirely from France and England and are generally of the very highest quality. The French factory of Peugeot Frères has a certain mark that is used only on its best product, and the sculptors' chisels bear

this mark doubled. In this quality the $\frac{3}{4}$ -inch is sold for \$0.072 each, and the $\frac{1}{2}$ -inch for \$0.093 each net at the factory. These prices are for those without the handles, which cost \$0.03 each, and if the chisels are beveled there is an additional charge of \$0.01 each. A considerable number of these are sold because of the fact that an enormous amount of cut and lettered or otherwise chiseled stone is used in construction throughout Chile and all of Latin America where stone is available.

The turners' chisels are commonly sold in the $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{4}$, and 1 inch sizes, without handles and of second quality. These come principally from France and cost, net factory, \$0.107, \$0.12, \$0.14, and \$0.18 each, respectively. The English models are not used so much, but those that do come from England are of the very best quality and are sold at \$0.081, \$0.089, \$0.10, and \$0.126 each. English handles of beech are sold at \$0.055 each when purchased with these chisels.

The fact that the English article is sold at much lower prices than the French makes it more difficult, of course, for the French to compete. The English manufacturers in their turn have to compete with the German make. The problem of intrinsic value, the opinion of the workman, the tendencies of the retailer, and acquaintance with the firms that make the goods all have their separate and important effect in each case. The French makes are considered to be of excellent quality, but English makes of almost every tool enjoy the same reputation.

The facts presented with respect to firmer chisels may be applied in every detail to turners' gouges.

The preference in carpenters' gouges is almost entirely for the American or English type, although some persons in Chile seem to hold the opinion that the only place to buy a tanged chisel is in Germany, France, or Belgium. It is surprising to hear retailers state, apparently in good faith, that a tanged chisel is not obtainable in the United States, all the American models being of the socket type. The fact that handles for tanged types are made locally and that the latter are the prevailing European style may have something to do with this extraordinary idea. In general, it may be said that the American make enjoys the best reputation in socket types. Mortising chisels are not in great demand, because most of the shops do the work by machinery.

FILES AND RASPS.

There was formerly a large importation of files and rasps from Germany and England, those from the latter country being of excellent quality, but very expensive. In point of quantity sold, the German manufacturers easily led, but they have not done so recently, primarily because their product is slightly more expensive than that sold by the Americans and, secondarily, because of their unsatisfactory method of packing. Instead of being put up in a cardboard box and well presented, as the American goods are, the German articles generally come wrapped in paper with a great deal of string around the package, and this makes them very difficult for the retailer to handle. Two or three American houses do about 60 per cent of the business in files and rasps in Chile. Their product is held in high esteem by the workmen, the packing is all that can be desired, and

the appearance is excellent. The State railways use the American files almost exclusively. The type most used is the bastard cut, about 12 inches long, half-round hand, or flat. Triangular files used for sharpening saws are purchased in great quantities, especially the 4-inch length.

Practically the same statements that apply to files may be made with respect to rasps, especially as regards origin, prices, quality, and appearance. The most common sizes, when used by blacksmiths, are 14, 16, and 18 inches. Many cabinet rasps are used by carpenters. It must be borne in mind, in the study of the market in Chile, that enormous quantities of cheap furniture are made in the country, and that practically any carpenter who has enough capital to set up a shop considers himself a cabinetmaker. The result of some of their efforts to build fancy furniture is most extraordinary at times, the article produced having the appearance of being invented as the work progressed. However, the carpenters use the cabinetmakers' tools and graduate from one trade to another as their capital increases.

The shoemaker's rasp is generally sold in the 8, 9, and 10 inch sizes, and is used to a fairly large extent because of the native production of very excellent leather and the native tendency to use a great variety of leather goods on which these rasps can be employed to advantage. The principal manufacture of shoes is done in large factories, making, one may say, from 50,000 to 100,000 pairs of shoes per year, but shoes are so exceedingly expensive in Chile, when one considers the average income, that repairs are made as long as there is anything to repair.

Certain privately owned shops and foundries have used Swiss files to a limited degree, but Swiss and Scandinavian makes are likely to appear as German products because of the large and highly developed export houses in Germany that buy from small makers, combine the goods, and export them. As in the case of many other tools and of general merchandise, the German sales are made largely in the south of Chile and the British and American in the central and northern sections.

VICES.

Few wooden vises for carpenters' benches are now in use. They have been replaced by cast-iron vises, which are in most cases of American manufacture. Some of French wrought iron are occasionally seen, but these are rare.

The mechanics or iron workers who own or work in shops frequently use gyratory vises, the body being of wrought iron and the jaws equipped with a steel plate. The jaws vary from 4 to 8 inches, the commoner type being of 6 inches. These are usually sold by weight and come, ordinarily, with the weight marked on the iron. The price is about \$7 per 100 pounds. Some are not gyratory, but have hook bolts, so that they may be fastened permanently to the bench. The national navy buys practically all its vises in England, while the army shops buy in Germany. Practically all the German sales are in southern Chile, although that country also sells some in Valparaiso and in the nitrate fields. The British sales, like the American, are principally from Valparaiso north, the United States selling quite a number to the large mining companies and dividing the railway business with the British makers.

Detailed prices can be found in the numerous catalogues that are available, but it may be said, in general, that the English article is more expensive than the American, while the American prices compare favorably with the European, especially when one considers the excellent quality of the American product. In the very heaviest types there is some European competition. The German makes are high, however, one quotation being for \$10.80 per 100 pounds, net, German port.

TROWELS AND MASONS' TOOLS.

In addition to trowels this item might naturally be supposed to include plumb bobs, levels, stone and brick hammers, and squares, but all these, except trowels and plumb bobs, are treated elsewhere.

In this connection it may be of interest to the hardware trade to know that the science of masonry, in all Latin America, presents the most remarkable contrasts. The greater percentage of the common work is done with adobe, or sun-baked mud bricks, the consistency of which is augmented, in the case of the more important makers, by the addition of straw and, in the case of the poorer workers in the small towns and rural districts, by the addition of manure containing straw. With the possible exception of five or six of the largest cities, it may be reliably assumed that 75 per cent of the masonry, so called, in all continental Latin America is built with adobe bricks. If the workman does not use a hammer of local make he is not at all handicapped, since the material can be cut with a blow of the trowel. Another notable feature in this connection is that very few masons of any kind work to a string, and the result is that the work moves slowly and is expensive, in spite of the fact that the pay is very low. It is not unusual to see a man attempt to level each brick, or at best to stop after laying three or four and level the lot. This applies to both sun-dried and kiln-baked bricks. In order that the verticality may be maintained, he will plumb every line. Squares are employed, but only in minor quantities, and the use of that very valuable tool is hardly understood even by the best of workmen. This would not be particularly surprising in some parts of the world where the workmen are well educated and replace the square, for all laying-out work and corner trying, by the use of the compass and trigonometric tables, but in Latin America a directly opposite condition obtains.

The principal items to be treated under this head are, as previously stated, trowels and plumb bobs, and of these very few come from the United States. The Germans easily lead, because of the low price at which they offer their merchandise. Price is certainly the controlling factor in this line, since the class of men who use the tools are among the poorest-paid artisans and the least intelligent. Brick and stone layers, as compared with those who lay adobe, are of course more competent and command a higher wage, but the bricks with which they have to work are of such poor quality, as regards shape, size, and uniformity, that even the best of workmen can do little with them. If the result of a man's labor attracts attention chiefly because of its poor appearance, he surely has little cause for paying attention to detail, and is not likely to seek a good tool. After the brick (or, in fact, almost any kind of masonry) walls are finished in Chile, it may be said to be the universal custom to cover them with stucco. This work is largely done by foreign workmen, the Italians

being especially apt in forming cornices and the various adornments that cover the walls.

Trowels.—The most common trowels are called "American type." They have a wooden handle of a very ordinary kind, a sharp point, and are otherwise egg-shaped, the big diameter being near the handle. The length is 7, 8, or 9 inches, and the net prices in France are \$0.23, \$0.24, and \$0.275, respectively. These are, of course, brick trowels. The corresponding prices, net, at the German factory are \$0.174, \$0.182, and \$0.197. The reason for the greater importation of the German article is quite obvious. One reason why Germany can sell them so cheap is because they are made in one piece of solid forged or cast steel, instead of the tangs being welded on the blades. It is thought that some of the cheaper articles, such as trowels used for plastering mud between the adobe bricks, might be made very cheaply by stamping a steel handle, tang, and blade all in one piece. The small triangular pointing trowel in lengths of 4 to 5 inches is sold by the German and French makers at from \$0.16 to \$0.17 each, the former quoting a slightly lower price than the latter. The square pointed tool, 8, 9, and 10 inches long, is sold at the European factories at a net price of \$0.179 to \$0.185 in France and \$0.19 to \$0.214 in Germany. The plane used by workers in stucco naturally has a larger sale, since all buildings of any consequence have outside work practically covering the walls, as well as interior plastering, for which this tool is used at times. It is generally sold in sizes of 10 or 11 inches. All these articles are shown in great detail in most foreign catalogues.

Plumb bobs.—Four types of plumb bobs made in Europe, and sold not only in Chile but in many other parts of Latin America, are shown in figure 4. The long slender one marked 10A is sold quite generally, but in small quantities. It is of varnished cast iron and comes in lengths of 10 to 12 centimeters (3.94 to 4.72 inches), weighing 150 to 175 grams (5.29 to 6.17 ounces). These two sizes cost \$0.27 and \$0.31 per dozen, net, at the German factory, and are retailed in Chile for \$0.07 and \$0.09 each, respectively.

The one marked 10C in the illustration is more popular than the 10A; it is sold in sizes from 150 to 500 grams (5.29 to 17.64 ounces). The most popular of all is 10B, which is of turned and roughly polished iron, with a brass string plug screwed into the top. The most popular sizes are of 150 to 500 grams, and the range in net prices at the European port is from \$1 to \$1.65 per dozen.

The one of peculiar shape, with a wooden spool attached, is for the use of masons working on walls. It is made locally, is of brass outside, and is filled with lead. Plumb bobs of this kind are very cheap, but their use is largely confined to the workmen who build adobe walls as a specialty. It is true that this is the most usual form of wall construction, and one might expect a reasonable (though probably not large) sale of this article. It would not seem wise to make it specially, but rather to make the type used in Mexico, which is a little different. The latter type has a good sale in Mexico, is an improvement on the models sold in most of the territory from Guatemala to Brazil and Peru, and could be introduced in Chile.

It is hoped that manufacturers of masons' tools will not feel that the sales of certain articles described are peculiar to Chile. On the contrary, throughout the northern and western parts of South

America, as well as in Central America and Mexico, the masons' tools are very much alike. With so large a territory to enter, the manufacture of many of these cheap things appears to be worth while.

AGRICULTURAL TOOLS.

In *pitchforks* the United States has but one competitor, and that is Germany. Practically all the German sales are in southern Chile—that is, Valdivia and Concepcion—although even there the American makers sell many more than do German houses. England sells perhaps 10 per cent of the total supply, but this is probably due to the fact that certain business houses buy enormous quantities of shovels from two British houses (Spear & Jackson and John Yates & Co.) and at the same time place an order for forks. Also, the D-handled potato forks from England are used in mixing mud and straw for making adobe bricks and are considered quite the proper thing for that purpose. These potato or adobe forks are nearly all of four or five teeth, the six-tooth implement being used to a small extent.

The most common pitchfork used on the farms and in stables has four or five teeth, with handle $4\frac{1}{2}$ to 6 feet. There is also another type in general use, known locally as a straw fork, which is very wide and has a wire connection across the free end of the teeth. This is sometimes a flat, narrow band, but if a fork without one is bought the person handling chaff may put on a band or wire. It is not considered necessary to give comparative prices, since the American manufacturers control the business except in the distinctly German section of the country or in the case of English potato forks that are generally bought with shovels.

Shovels.—More than \$200,000 worth of shovels are sold in Chile every year, and England makes 80 per cent of them. Germany sells about 12 per cent, principally in the Talcahuano-Valdivia section, and the United States about 7 per cent, chiefly to mining companies or railways. The French shovels, so called locally, are not shovels at all, but spades, and designed principally for garden work. The farmer's and individual workman's is called the eye shovel; that is, it has a hole in which the handle can be placed, somewhat similar to the opening in a socket chisel, although, of course, the shovel part has no such finish as might be found on a hand tool. The same sort of handle may be put in as is shown in the square shovel, the third from the left, but the user generally prefers to put in a handle of anything available. The weight of this shovel is $4\frac{1}{2}$ or $4\frac{3}{4}$ pounds. The best-known mark is the "Mono" ("Monkey"), of British make. Many shovels of this type are not made of solid steel, but only have a steel point. They are made by more than one firm, under different marks.

It seems to most merchants, at first thought, that they sell more shovels of the "Mono" type, without handle, than of any other, but this is not really true. The sales of these are generally one at a time, and they are being sold continually, while those used by contractors, mines, and railways are sold less often but by the dozen or gross. The variety that has probably the largest real sale is called the "carrilana" shovel. That word is simply a name meaning that it is used by the railways. It has a D handle and is a plain-back,

round-pointed tool. The lowest price obtainable seems to have the preference, and the size of the shovel is No. 3. Contractors and companies might prefer to have the workmen use No. 2 shovels, and they occasionally order them, but the workmen do not approve of this.

The square shovel is used at times, especially in mixing concrete (and practically all concrete is hand-mixed), but the demand is small.

The D-handled drain spade is seen occasionally, but it hardly holds the same percentage of sales that it would in the United States, where the advantage of special tools is fully known. The best-known coal shovel is a large and solid type with polished scoop, made of cast steel and having a D handle. These are sold largely by British firms, although some American ones are encountered at times. In the No. 3, the draintile spade, the manufacturers of the United States should be able to compete readily.

The "Mono" type, cast steel, $4\frac{1}{2}$ pounds, is sold at the British ports for \$0.50 net, $2\frac{1}{2}$ per cent off for cash. The No. 3 is sold for \$0.35 each net at English ports, and its appearance is such that it seems quite possible for American manufacturers to compete. The quality of the American article would be a little better, and the price would be about 10 or 12 per cent higher.

The garden shovel in general use is the French model, almost flat, with a long, straight handle. The width varies from 10 to 13 inches at the top but becomes less toward the bottom. It is generally polished and all steel and resembles greatly the well-known long-handled, plain-back spade of American make. Although it is called a French model, most of those used come from Germany (Goldenberg). The prices are somewhat less than those obtainable in the United States.

Hoes.—Among all the hoes used in Chile the great and general preference is for the English "Mono" (or "Monkey") make. This weighs 4 to $4\frac{1}{2}$ pounds, and nearly always comes without a handle, this being imported separately from the United States, if destined for use by city dwellers or large companies, or cut from a convenient tree, if used by the farmers. Since the "Mono" hoe is a heavy tool, its use will be readily understood as covering all sorts of work, such as mixing mortar and mud for bricks, hoeing roots, and similar purposes. This hoe is about 10 inches high, with 9-inch top and 7-inch edge, and it has a large eye and a hammer head. It is shown in the upper right hand corner of figure 10. This is by far the most popular type, some dealers saying that more than three-quarters of those sold are like this. The one shown on the upper left of the same illustration, having a rounded top, is imported from England largely, although the United States also sells a very similar model at moderate prices and the tool gives satisfaction. It is made in about half a dozen different sizes. The type shown at the lower left is generally used for cutting small roots, cultivating certain plants, and at times for mixing mud for bricks.

The manufacturer must not assume that these articles are peculiar to Chile. On the contrary, there is a big field for them, and it would not be surprising if, in the territory from Mexico to Venezuela and Chile, there should be a sale of a million dollars per year, provided prices and terms could be met.

In the three sizes mentioned the British prices are: Four-pound "Valparaiso" type, upper right-hand corner in the illustration, \$0.317 each, net, in any English port; hoe at the upper left, called "Carolina," \$0.188 each; hoe at the lower left, \$0.38 each. The last named is heavier than the other and is of excellent steel for root cutting. The three are found in the English catalogues of William Edwards & Sons (discount 17½ per cent and 2½ per cent off for cash).

Scythes and sickles.—It has been seen in the import records for scythes and sickles that in the year 1912 the purchases in Germany were about 30 per cent, in Great Britain about 63 per cent, and in the United States about 6 per cent. In 1913 Great Britain sold 89 per cent, Germany 5 per cent, and 5 per cent came from various sources. In 1914 Great Britain sold 91 per cent, Germany fell off a little more, and the United States sold practically nothing. It is said the London forwarding agents handled a considerable variety of French goods, acting as distributors as well as manufacturers. This is also borne out by the fact that the Chilean merchants state that they handle a number of French articles, such as scythes and sickles, yet the importation record does not show it.

Referring to figure 6, the first article on the reader's left is a scythe, regarded as a popular model. It has a shadow on the lower end, but is actually of the ordinary bright steel color. It is distinctly a French pattern (Revollier & Coulaux), and the ordinary sizes vary by 2 inches from 18 to 28. The thin curved sickle in the middle is English and has fine teeth. This is a very general feature in all sickles for grass cutting, and many farmers use such sickles to cut small patches of grain.

The reason the British makers control the market is because of the price and quality of the goods offered. The appearance is very poor; there is apparently no attempt at finish, but the material is good and the tool fills the need.

The use of scythes and sickles is decreasing very fast, only \$3,500 worth being used in 1914, because of the increasing use of mowing machines and binders. No grass grows in northern Chile. Machinery is being used on the better farms, and the use of the tools under consideration is gradually becoming limited to the cutting of grass or weeds in close corners, or the cutting of grain or hay by the very poor who have little, if any, crop. It is thought that a few American scythes and sickles might be sold if the cheapest were offered. The trouble with the scythe is, of course, the curved handle, which is expensive to buy and difficult to repair or replace.

Rakes.—The United States sells more than 80 per cent of all the rakes imported into Chile. The only other country doing any business worth mentioning (about \$700 a year) is Great Britain, and the English product is almost the same as the American; that is, with a long handle and 8 to 14 teeth. The French model that insistently appears in the shops, in refutation of the import statistics, has teeth on one side and a hoe or a knife on the other. These rakes are made of one piece of steel, from which the teeth are cut, and they are sold without handle. They are expensive, of peculiar appearance, and their use is dying out. The Germans make ordinary rakes that are exceedingly cheap. They are generally cast iron, although some have the teeth riveted to the back. These are also offered without handle and probably are sold from time to time, but the

American rake has the advantages of good appearance and quality and apparently there is no complaint regarding price. If it is possible to do so, rake handles and all other tool handles of wood should be shipped separately, since a very heavy import duty is levied on them.

Garden tools.—The British manufacturers, Spear & Jackson, send out very attractive sets of garden tools, and they are of good quality. Such tools are received from various other countries, however, the Germans seeming to sell a number of the smaller sizes that are used as toys or playthings, while the French and Americans occasionally sell a few. There are all ordinary sizes in the assortment, which generally consists, in the more salable sets, of a rake, a straight shovel, a spoon or trowel, and a hand fork. There is such a variety of models and the total business is so small that very much of an effort to sell them would hardly be profitable. Orders are generally placed where the dealer buys other merchandise.

Corn knives are very seldom used as such, but a tool known as a machete, which resembles a corn knife, is used in the southern part of Chile to cut brush. Good grades are often purchased, the better quality for this market generally coming from England. The most popular length is about 15 inches of exposed blade, measured along the back. In addition to this, the handle is likely to be 4 to 5 inches long.

For pruning, hand shears are generally used and these will be discussed elsewhere (see p. 111).

Post-hole tools usually consist of a bar and spade. It is not customary to use special tools for this class of work.

Hay knives are practically unknown, and they are very rarely used, except, perhaps in the extreme south, where hay forks or carriers would be found. It is customary to bale hay in Chile and about the only protection ever given it is piling under a shed roof.

Corn shellers.—The market for these is not particularly great. About 1,250,000 bushels of corn are raised per year in Chile, and of this amount a rather large percentage is raised by small farmers who have no machinery. A common method of shelling corn is to rub it on the butt end of a bundle of corn cobs. Frequently, in a town or a neighborhood where much corn is raised, one farmer or one miller has a corn sheller run by power, which does the shelling for the small producer. A farmer producing in great quantities would have a power machine to do the work. The few hand shellers that are imported are included in the statistics under sundry tools or agricultural machinery, the extent of the market being, therefore, unknown.

Lumber tools are classified under sundry tools, and nothing near the amount is used that would be expected from the number of mills in operation; but, of course, all sawmills require cant hooks. There is a remarkable amount of rafting, in small quantities, in the southern rivers, and a few pike poles are seen. For more complete data on the number of mills the reader is referred to the discussion of saws (p. 76).

SCALES AND BALANCES.

The small-model scale held in the hand or used by butchers and grocers has a large sale in Chile. Persons who sell fish and vegetables in the market places, or from carts along the street, ordinarily

have a hand scale similar in every detail to the one commonly used in the United States, but marked in kilos (kilo=2.2046 pounds). The size most frequently asked for is 25 to 100 pounds, the latter being much stronger, or perhaps made with a ring and steel spring. These types come principally from Germany, because of the low price.

The so-called family scale, manufactured in the United States and having a face in the form of a clock, is sometimes brought out from Europe, but the American model is much better, is solid, and is sold at a reasonable price.

At the present time the municipal regulations of Santiago demand that in many places there shall be used the form of scale having a pivotal standard, a horizontal arm set midway on top, and two plates hung thereto, one at each end. In the center there must be a needle, or marker, and the weights used must be expressed in grams. It would not be surprising if this type of scale should grow in use throughout the country. The most common models are from France and Germany and are referred to as "Robenard" scales. The weights used on this type seldom exceed 20 pounds; the set of weights sold with them come in a separate box and weigh 1, 2, 5, 10, 20, 50, 100, 200, 500, or 1,000 grams each (gram=0.03527 avoirdupois pound). Of each weight mentioned there is one in the box, except that of 100 grams, of which there are two. This is not to be taken as meaning that the calculating and registering scales are not used. On the contrary, they are held in high esteem and most of the really progressive stores have them. They are principally from the United States. The ordinary scales, having a platform on wheels, a vertical post, and a notched arm with pendant weights, such as are used in the feed stores of the United States, and wagon scales of from 400 to 3,500 pounds capacity, all come from the United States. Everybody consulted seems to consider them the most satisfactory as regards appearance, quality, and price.

The statistics of importation given in Chapter IV do not include scales for weighing letters (which amount to about \$350 per year and come from Germany because of the extremely low price) nor balances for weighing gold, which do not total \$20 per year.

Balances for assayers are imported to the extent of about \$2,500 per year, of which the United States sells 40 per cent, Germany 40 per cent, and England 20 per cent. The price of the American is a little higher than that of the German, but the quality appeals to purchasers, while the English article is too expensive.

Drug-store balances are 80 per cent of German origin and 15 per cent French. The German article is good, the price is low, and the users seem to be satisfied. In order to compete in this line, which amounts to about \$2,500 per year, the manufacturers of the United States would have to produce a cheap article. Quality and appearance in drug-store scales are seldom highly appreciated in Chile.

POCKETKNIVES.

Seventy-five per cent of all the pocketknives used in Chile are brought from Germany. They have constituted an important item in the past, running as high as 10 cents per capita during prosperous years. This trade has, however, been falling off of late, because the

knives are not absolutely required except by a very few people, and during the last two or three years the poor of Chile have not been able to indulge in such luxuries. They prefer, even in ordinary times, an article made by local blacksmiths, since it can be used as a table utensil, in the kitchen, on the farm, and as a weapon. Neither has the better class of people bought much lately of this particular article.

The English firm of Rodgers & Sons is regarded in Chile as producing an excellent knife, and among those who have taste and judgment this mark is very apt to be considered. Also, there is a large British colony in Chile, and they adhere to their former preferences. The British type is expensive, however, and the great majority of pocketknives come from Solingen, Germany.

The German knives are low in price and competition is not greatly feared by the manufacturers. Their marks are well known in every town in Chile, and the high reputation that their product enjoys is considered to be merited. One of the most popular varieties has a handle of ivory, bone, or pearl, with three or four blades and a corkscrew. Another model much admired has a ring in the handle for fastening to a chain, and has a manicure blade.

The better-class farmers and their superintendents and foremen like a knife with tools in it—such as a corkscrew, saw, file, hoof cleaver, and that sort of thing—of ordinary quality, and the cheaper the better.

As regards the packing, the British send their best penknives in very pretty cardboard boxes of a dozen each, each knife being wrapped separately in tissue paper. Their ordinary knives are very poorly packed. The Germans send bright-colored, attractive boxes containing an assorted dozen, even in their cheaper grades. It is believed that the success of the Solingen manufacturers is due to their giving greater value for the money received. The French sell their knives at too high a price to compete easily, but some of their more fancy articles are occasionally brought out. The United States sells practically nothing in this particular line.

KNIVES AND FORKS.

This classification includes two parts. The first, which is far the more important in point of total value, is made up of kitchen knives, those used for opening cans, carving sets made of iron or steel and bare or nickel-plated, paper knives, and salad sets, always provided that the metal is not gold or silver, nor plated with those materials. If the articles are thus plated, or made of gold or silver, the classification is the smaller one shown in the statistics. Ninety per cent of these articles are sold from Valparaiso south, 60 per cent being delivered to that port. The United States has sold but few of these articles in Chile, although the American silver, or silver-plated, knives and forks are known and enjoy a good reputation. More of these should be sold, since the prices are reasonable. One of the principal difficulties experienced by the French seems to be that their knives are arched to such an extent that they attract attention and are not liked on that account.

From Solingen, Germany, are brought the knives and forks entirely of metal, with a smooth nickel-plated handle. These are used very generally by the poor and have been adopted by the army. They

are exceedingly cheap and are retailed in the central towns of Chile for \$0.73 per dozen knives or per dozen forks. The handle is called English and is flat. Wood and bone handles are sometimes seen but are not popular. In the French goods of Gombault, Paris, the handle is round, and there is small demand for them. As regards the sales to the general public in common knives and forks for table use, the British firm of Dixon sells practically the same article as the Germans, and their prices are such that they hold the greater part of the business.

OTHER KNIVES.

Carving and skinning knives are brought principally from Great Britain, Germany, and the United States. They are not included in the table of imports because they are not shown separately in a list of materials so varied that nothing can be accurately determined from it. It is known, however, that the use of the American-made article is increasing, especially in skinning knives, because of the peculiar curved form of these, which reduces greatly the danger of hide cutting.

American shoe knives are passing through a similar experience; that is, their use is increasing as compared with the product of the English firm of Wilson, which originally sold most of these models. The American article is esteemed because of its quality and moderate cost.

Hunting knives are something of little importance. The real use of a hunting knife is not clear to most knife buyers or hunters. There are not many wild animals in Chile for which one would need such an article. The few knives of this kind that are sold are generally bought for their unusual shape—that is, as a novelty—and the importation is irregular both as regards source, quality, and price.

Of all the special knives just mentioned, as well as of butcher knives, the annual consumption is from \$12,000 to \$14,000, Valparaiso and Talcahuano handling about one-half and one-third, respectively.

Putty knives are used to a considerable extent on the better class of houses, because these are generally so constructed that the light is obtained by means of glass inserted practically everywhere in the interior, as well as the exterior, doors. This means a large consumption of glass, putty, and the tools for working this material. The life of the house is apt to be longer than in the United States, since there is small danger of fire because of the considerable use of masonry and other incombustible materials. It must be borne in mind that the houses occupied by the very poor may not have any light at all, this being particularly true in the country.

Paring knives are found almost exclusively in the kitchens of the well-to-do and particularly among the foreign residents in Chile, as well as in the canning factories, of which there are two or three of importance. In spite of the excellent quality and abundance of the Chilean fruit, few paring knives are sold, except possibly in the European colonies established in the southern part of the country.

SCISSORS, SHEARS, AND RELATED ARTICLES.

It will be noted from the importation records that the United States sold about 35 per cent of the supply of scissors and shears during 1912 and 1913, Germany about 50 per cent, and France most

of the remainder. France and Great Britain, however, have been losing ground steadily since that time, and in 1914 the United States sold 60 per cent and Germany 33 per cent. The situation in 1914 was somewhat affected by the outbreak of the European war. Even under ordinary conditions the United States has generally supplied the article 6 to 14 inches in length, having a large handle eye. The commonly used seamstress's scissors, from 4 to 6 inches long, straight in form and having round equal eyes, is likely, if it comes from England, to be expensive, but of good quality. The German scissors are good if the buyer does not insist on too low a price. They are generally nickel plated. The pocket scissors are from 3 to 4 inches in length and have a round point, so that the cloth of the pocket will not be cut. They are sold in polished or nickel-plated styles, and the business is divided between Germany and the United States, the better quality coming from the latter country. The large tailors' shears generally come from France or the United States. The French tool is very solid and of excellent quality, but is very expensive; some retail as high as \$11 apiece.

Manicure scissors.—Easily two-thirds, and in some years more, of the manicure scissors used in Chile are of German origin. They are from 2 to 3 inches long, pointed, and generally have a file on one side. They are also slightly arched for the purpose of cutting a round edge.

Barbers' scissors, as in the case of nearly all others, are polished, nickeled, or dipped in German silver. The barber requires an article of good quality, and generally asks for a thin blade. The popular sizes are from 5 to 6 inches long. The scissors should be straight, as there is little demand for the arched type. The French make very good barbers' scissors, but the price is too high for them to sell well in Chile.

Shears for clipping sheep and horses, as well as for pruning, come from England, Germany, and France. In sheep shears the American model is almost the counterpart of the English, both in form and price, but the English makers sell by far the greater part of the total number used. The French make a very good tool, the distinguishing feature being that the blades may be separated for repairing or sharpening them with ease and safety. As is true of so much of their output, the French shears are expensive. The German are the cheapest, speaking generally, but the English and the American are the most sold. The popular sizes are 12, 13, and 13½ inches long. Two types of the European model are shown in figure 6, being used for both sheep and horses.

Pruning shears.—In this same illustration is shown one of the popular types of pruning shears of German origin. It is bright all over, 10 inches from point to butt, has a strong steel spring, and is sold for \$0.392 f. o. b. any German port, with 2½ per cent off for cash. Half a dozen are packed in a cardboard box. There is no apparent reason why American makers should not compete in this line as regards price, quality, and appearance. Although the German tool is good, the American appears to the casual observer to be the stronger.

Few *barbers' clippers* are introduced into Chile except from the United States. Those that are of European origin are generally so because there are more French, Spanish, and Italian barbers than of any other foreign nationality, and their early training manifests itself

at times in a request for the European clipper. The United States make, however, is highly satisfactory both as to quality and appearance, there is no cause for complaint as regards the price, and some hair-cutting machines come from that country.

In the statistics for 1912 there is a second subclassification that totals something over \$2,000. The method of classification has been altered somewhat of late, and the record is not as clear in this respect as before. The sum mentioned, \$2,000, refers to clippers for horses and animals in general, and here it may be noted that the United States easily leads. The only difficulty in controlling this market, from present indications, is that of meeting conditions entirely separate from price, quality, or appearance; that is to say, credits probably account for the sale of that part not of American origin.

Razors.—The Germans are unquestionably strong in the sale of all types of razors except the safety. Their product makes a good appearance and is very cheap. The popular types for barbers are concave and light weight, with a blade an inch wide. The handle is generally black, made of horn or ebony. Razors for private use are preferred with narrower blades and in lighter weights. Generally the principal sales of American razors are of the safety variety. An English safety-razor company is offering a product at the price of \$0.85 for the razor complete with one blade. Extra blades are sold for \$0.10 apiece.

It is found that the cheapest nonsafety razor is sold for \$0.80 and the most expensive for \$3.20. The minimum for an American safety razor is \$6.72 for one make and over \$7 for another. German blades for a certain American safety razor sell for \$1.18 per dozen and the American blades for \$1.69. There are also cheap German razors that can use the American blade of this razor without bending it, and they greatly undersell the American product.

The import figures in dozens and the country of origin for the last five years follow:

Country of origin.	1910	1911	1912	1913	1914
	<i>Dozens.</i>	<i>Dozens.</i>	<i>Dozens.</i>	<i>Dozens.</i>	<i>Dozens.</i>
Germany.....	2,928	2,104	2,941	5,246	3,120
Great Britain.....	740	538	597	1,653	707
United States.....	438	1,253	77	1,002	674

It would seem to the writer that the extremely cheap American safety razor, such as retails for \$0.25 in the United States, might with proper advertising be introduced in Chile. At present few of the poorer classes shave themselves or deem it necessary to employ a barber more than once a week, if that often. An appeal on the line of economy should bring results.

Razor strops are very generally employed, as it can be said that the safety razor, though used, is still something of a novelty. The commonest types of strops consist of a wooden strip leather covered on both sides, about 20 inches long. One side is covered with fine emery paste, and the other side is oiled and used to smooth the sharpened edge. Another type consists of a leather strap with a handle at one end and a hook at the other that allows the strop to revolve. These come largely from the United States. Unfor-

tunately, the importation record of strops and hones is not separated. A manufacturer might form an approximate estimate from the fact that the annual value of brushes is about \$2,500.

Shaving brushes.—In the past Germany has been the principal source of supply of shaving brushes, although England and France have always sold a reasonable amount. Of late the German sales seem to be decreasing, notably in favor of the British, but the French continue to control their small share because of the varieties they sell. Prices are of no interest as a basis of comparison because either the brush or the handle varies so much. It may generally be said, however, that the Germans make a strong point of price, the French of appearance, and the British of quality, although frequently the French brush is excellent and the German very attractive.

Nut picks and crackers are sold in very small quantities and may be of any origin, but it is probable that the German make would be sold more than others because their article is cheap, of good appearance, and quite satisfactory, in particular as regards the nutcrackers. Nut picks are seldom seen anywhere in Chile.

SPOONS, OTHER THAN TINNED.

The importation records under this classification include brass, copper, silver, and gold spoons, or those plated with these materials. By far the greatest amount are silver or silver-plated. They come chiefly from the British firm of Rodgers & Sons and are popular everywhere. They are generally cheaper than those from France, Belgium, and the United States, and, for the same quality, cheaper than those from Germany. The German makers appear to undersell them in certain lines, but the quality is not considered to be as good. When purchasing silver tableware, it is not unusual for one who is not a good judge of the material to ask for an accredited mark, and the leading British firm enjoys such a reputation for quality that the merchandise practically sells itself, provided the consumer has decided to purchase silverware.

The German spoons having the greatest sales are called "Alpacca." The material has the appearance of nickel, or German silver, and preserves its white color. Germany also sells some brass spoons that are nickel plated, but these are purchased only by the very poor. Not even they will accept a spoon with wood or bone handle.

It is noted from recent investigations that the importation and sale of spoons has fallen off greatly in the two years preceding the writing of this report. This is largely due to the fact that new silver is not a necessity, and one can even use, if constrained to do so, a brass spoon with the nickel plating gone. Prosperity has not been at high tide in Chile during the period mentioned, but conditions are becoming more favorable and it is hoped that American manufacturers will be able to participate in the sales that are certain to accompany the already developing improvement in the commercial situation.

The principal ports for spoons are Valparaiso and Talcahuano, the first-named handling the great majority of the business—that is, the part for the wealthiest third of the Chilean population.

TINNED SPOONS.

Germany sells about 70 per cent of the tinned spoons, and the United States the remainder. This condition arises from the fact that poor people, farm workers, coal miners, and Indians use this type. The poor are everywhere, but the other classes mentioned are practically all in southern Chile, tributary to Talcahuano, where the German interests center. That port handles about half the business of the country, the remainder passing through Valparaiso. Even in the last-named place, where importations are made for use in the city itself, in Santiago, and for distribution in the nitrate fields, by broken shipments, the German makers sell a reasonable amount. They supply practically the entire needs of the army, which is the one best customer. In order to increase their sales, the American manufacturers must be represented in the south of Chile, must bid on army supplies, and must offer their product to the nitrate establishments and the big mines. The fact that they now sell 30 per cent of the whole, and get nearly all of this business in the territory where only 40 to 50 per cent of the total is sold, indicates that they can compete.

BUILDERS' HARDWARE: INTRODUCTION.

In the builders' hardware line the casual observer would be very likely to insist that the market was entirely in the hands of the French makers, but it may better be said that it is in the hands of those who will make a French model of good appearance at a satisfactory price. To the American builder, who can, speaking broadly, contract with any American carpenter for the construction of a complete house, it would occasion some surprise to learn that in very few of the countries south of the United States is the carpenter fitted to design even the details of a dwelling, and, if he be so fitted, it is highly improbable that he will be permitted to do so. The owner seeks the assistance of an architect for all work to be done. If the owner is wealthy or a member of one of the leading families, he has probably traveled in Europe; in any event, his ancestors and relatives, because of their European origin, have followed the European styles in house construction. The architect has, ordinarily, obtained his higher training in France, and has returned from that country imbued with ideas wholly French. Although he would not be likely to buy in France because of sentiment, he, and the owner also, might naturally be inclined to favor the French design. It should be clearly understood that a century of training, even in the matter of door knobs, is not easily overcome.

In order to introduce articles competing with the French, the British manufacturers have duplicated nearly all the French designs in builders' hardware. Certain of these they use even at home. French windows are considered quite the proper thing in rural England, as well as in Germany. The Germans have imitated the French product in almost every detail, and at such a price that they are able to compete in a satisfactory manner so far as cost is concerned. The organization of the German selling force is such that they are often enabled to handle the product of French factories to the ultimate advantage of all concerned—that is, by a large Hamburg or Bremen jobbing house taking over the output of a French factory and acting as distributors. The writer is not in a position to state positively that this

is done, although it would be a perfectly legitimate practice and it is reliably reported that German travelers often offer certain varieties of French goods. They certainly offer many French styles, and if the American manufacturer desires to increase his sales in certain well-defined lines, he also must conform to the French styles, because they are assuredly what the users want to buy.

One of the notable features about Chilean buildings is that the windows, being of the French type, generally open like a door. In order to close them, a vertical bolt is required and in this article there is some unimportant local competition. The shutters are on the inside, almost universally of solid wood, and have little latches and hinges. The transoms usually consist of two small windows with one pane of glass in each, each transom window having a blind or shutter latching on the inside the same as the large windows themselves. One transom window underlaps the other with a moulding or bevel, and the overlapping one has a spring bolt with a beveled edge pointing upward and with an eye in the bottom to which may be attached a string or chain for its manipulation from the floor. The American make of transom bolt is generally square, but in Chile the rectangular shape of Continental origin is preferred. This appears from the outside to have two plain staples, but the one inclosing the bolt has a spring. It is made of iron, bronze, and nickel, and in the iron is sold as low as \$2.60 per hundred. Generally all outer doors and most interior doors have transom windows, although the reason is not obvious.

Most doors leading from a corridor to an apartment or suite of rooms, as well as many inner ones, are double, opening like the French windows and having panels of glass covered by wooden blinds on the inside. It is not unusual, then, for an important door or window to have 2 door bolt sockets, 18 to 24 hinges of various sizes, 4 complete latches and catches, the long up-and-down bolt, and the transom lock, besides the door locks—with the possible addition of a chain with hooks for more secure fastening. The system is very expensive, highly unsatisfactory, exceedingly impractical, but the people like it. This is the only (although an entirely sufficient) reason for its existence.

In general, the writer would not advise any manufacturer to copy the patterns of other makers in the hope of securing their business. It is not believed that this pays in the long run. The fact that every Cuban workman either takes pride in his American machete, or looks forward to the day when he may own one, is proof of a reputation earned by other methods than the blind copying of some foreign maker's tool at a few cents less. It was obtained, rather, by adhering to that policy of quality that commonly characterizes the American make. In the matter of window and door fastenings for all Latin America, however, the manufacturer should appreciate the fact that there is a great market for the French type of building hardware. This is not a question of an occasional order, but the problem of sales so important that they run into hundreds of thousands of dollars per year in the various countries. To secure a share of these would be decidedly worth while. And one may state with certainty that the market will be consistently maintained during the lifetime of the present generation at least.

It may be of interest to note that door checks, and fastenings and adornments for screen doors, are seldom if ever used in Chile, except by a few foreigners.

LOCKS.

As regards locks in general, the German makers sell the majority both as to number of pieces and the total value. Where these articles are intended for street doors, however, the best quality comes from the United States, England, or France. The American model is generally of cast iron, although the brass lock of one of the makers is so well known and highly regarded that even in Government specifications it is mentioned by name, not to indicate that it is the only one to be used, but rather that it is the standard with which competing locks will be compared. The British manufacturers come so close to duplicating it that only the name stamped on it can be considered an identification by one who is not an expert.

The primary difference between ordinary American door locks and those from France is that the former are generally cast iron and the latter wrought iron. This applies not only to locks but to many articles in building hardware. The local opinion seems to be that the wrought iron is stronger and therefore better. This is a not unreasonable assumption, since it is obviously easier to break a cast-iron piece than one of wrought iron. The local idea that all American locks are of cast iron is something that must be overcome as soon as possible, since the American wrought-steel locks are undoubtedly quite as fine as the European wrought iron.

One of the interesting features with regard to the manufacture of French locks is that the parts that require handwork are generally made by farmers during the winter season. One family or group may devote its attention to a single part of a lock, and by this division of labor a large number may be made in a comparatively short space of time. Later certain groups may assemble the parts, if this is found advantageous. Much small hardware is handled in this manner, even parts of ordinary firearms being so made in France.

American handmade goods can seldom compete with European handmade models because of the great difference in the payment of laborers. What the United States can make by machinery, however, is usually sold at such prices that competition is possible and there is the added advantage of strict uniformity. The "American" lock, so-called, of cast iron with white china knobs is held in high esteem in Chile, especially for interior doors. Even here, however, the French and German models compete. Reference may be made to figure 7. The bright lock shown over the mark 2'3" on the tape, and placed second from the left end, is very popular. It is called a "French" lock. It is 5½ inches long, 3 inches wide, and costs \$0.22 net as sold by Stremler & Loiseau, of Paris. The small brass knobs are sold separately for \$6.88 per hundred by Baudry Morain. They are provided with one key only (very few extra ones are sold), the necessary screws, and key and knob plates. They are easy to put on, and when the door is locked they are very difficult to pry off from either side, as the wrought-metal end overlaps the edge of the door. The keys are very large and so complicated that it is extremely difficult to duplicate them. There are cheaper models of this lock, costing from

\$0.17 to \$0.19 each, with knobs at \$5.60 per hundred, but they are not largely used. There is also a much more expensive model, very strong and highly satisfactory, but it costs \$0.50, which represents quite a difference in price. Nearly all the locks shown in the illustration, and in fact almost all door locks used in Chile, have enormous keys, some blanks being shown in figure 8. It is not unusual for the keys of a house to average 4 or 5 inches in length. However, as the American lock becomes better known, the keys are accepted and generally satisfaction expressed at the reduced size. The only common arguments against American door locks in general is that they are "difficult to put on and unsafe because they are made of cast iron." This statement is made by the users and is in no sense an opinion of the writer.

Another popular lock, called "duck's beak," used on inner offices and hall doors, is the one suspended in approximately the middle of figure 7. The peculiar shape of the handle is noteworthy. In the construction of the better houses in Chile there is almost invariably an outer street door and then an inner door with large glass windows, which leaves a very narrow margin for a small lock. The "duck's beak"—often with simply a knob and no lock—is narrow and can be used on these inner doors. No. 1087 of the French firm of Stremmer & Loiseau has a handle with no key and is sold at \$0.56 each, net at the factory, if it has an imitation buffalo-horn handle and at \$0.71 if the handle is real buffalo horn. (The black horn of the buffalo is imported from northern Africa, Italy, Turkey, and elsewhere.) This lock can also be bought nickel plated and in bronze. Another French model of the "duck's beak" made by Vachette, of Paris, is very similar to the former ones; it has the advantage of a small key, and for this reason is preferred. The one shown in the illustration is of that type. Extra handles are sold for \$0.30 and \$0.41 per pair if of imitation or real buffalo horn, respectively.

The cheap varieties mentioned do not cover all the supply by any means, some of this type being sold as high as \$1 net at factory, while other very small ones sell as low as \$0.15 net at factory, but without knobs or safety catch. The knobs are obtainable for about \$5 to \$6 per hundred, and the addition of the safety catch costs \$0.07 per lock.

In cheap construction it is not unusual to use a lock with no knob whatever, depending solely on the key for opening. Some of these sell at wholesale in Germany or France for as low as \$0.10 each. The three door locks that meet the largest demand in Chile are referred to by the retailers, and the purchasers as well, as Nos. 1030, 1017, and 1028. It would be highly desirable in any catalogue sent to a bona fide customer to inclose a special sheet using these numbers at least as a cross reference. The last mentioned is used about one-quarter as much as the second, because it costs more. The first is more likely to be used on inner doors and the second on outer ones.

The keys come from the same source as the locks, except in the case of blanks, which may be obtained almost anywhere.

It is shown in the statistics that more than \$100,000 worth of locks are imported into Chile every year. These figures refer to all kinds except padlocks, and include those used by trunk and cabinet makers, practically all of which are brought out from Europe, though com-

petition on the part of American manufacturers is possible in some makes.

It does not seem to the writer quite appropriate to take up the discussion of cabinet locks under building hardware, and he will do so only in the most general sort of way, because of the fact that the statistical note regarding the importation of locks and keys refers not only to locks for doors but also to similar articles for drawers and other cabinetwork. It will suffice here to say that price is undoubtedly the most important point, since furniture made in Chile is built to a large extent by poor carpenters who contract to construct a given article for a given price. If a few cents can be saved they are so much better off, and the ultimate buyer is not likely to be able to recognize the difference between a good and a poor lock. The American manufacturers should seek means of producing at least a few of the cheapest articles that it is possible for them to turn out, equipping them with but one key, wrapping key and lock together in cheap, colored paper, and packing as many as possible in a convenient size of pasteboard box. In one type of box all keys should be different; in another type there should be a dozen locks, with perhaps two identical keys of a very odd pattern, such as a bird-head handle. Trunk and bag locks are also included in the records of the importation of locks. They must be cheap, generally, but a few good ones are sold, as a reasonable number of excellent leather trunks and bags are made in the country. The total importation of trunk locks, however, is not great, except in very cheap lines, and is comparatively unimportant even then.

The fact that the Germans sell two-thirds of the padlocks used in Chile is due to the low price at which their product is offered. They do not compete with the two or three very high-grade locks sold by the United States, although Great Britain does to a limited extent. In order to form an approximate idea of how cheap one can obtain the German article the following prices are quoted from the catalogue of one of the makers: Bright lock, $1\frac{1}{2}$ inches, one key, \$1.56 per gross; fourth lock to the right on the blank-key board in figure 8, spring bolt and spring cover, $2\frac{1}{2}$ inches, with one key, \$0.525 per dozen f. o. b. European port; $2\frac{1}{2}$ per cent off for cash.

The writer purchased a strong and heavy pasture-gate lock, with a chain about 8 inches long, for \$0.36. This was the current retail price in Santiago for a single lock. Apart from the very best quality of complicated padlocks—of which the United States sells the most, with England second—the great local demand is for an exceedingly cheap article to be used by the poor on their houses, or by anybody on sheds, boxes, trunks, gates, and inner doors. Next in demand is a heavier black or galvanized article to be used on pasture fences, grain rooms, railway stations, and switches. There is an enormous variety, but it is not at all necessary to compete in so many different lines. If the key can be made curved or of a peculiar shape, thereby augmenting the difficulty of opening the lock with strange keys, so much the better. It is necessary in practically every case to sell from two to four keys with a lock. One is not sufficient, but four is ample. As in all countries, there will always be some demand for combination padlocks, odd shapes and sizes, but the market for such things is exceedingly limited in Chile, and there is no reason for

attempting to supply it unless the American factory is making something of the kind already. Practically any lock factory makes at least a dozen kinds, and there is no good reason for attempting to make any special padlocks that would not find a ready market at home.

The padlocks made by English factories are generally galvanized, and the prices are usually higher than for a similar article from Germany or the United States. In spite of the high esteem in which the French article is generally held, the sales are small because of the high price. It is necessary that one know the French lock before buying it, as its principal advantage lies in the excellent construction of the inner parts, ordinarily concealed. These have from four to six throats, an ordinary key, and generally are not automatic. One French model, which does not necessarily come from France, is rather small, completely round, and used largely on milk cans. The German makers have sold every kind of lock in Chile and will continue to do so as long as they are able to produce them at current prices. One peculiar German type of padlock is 3 inches wide, has 6 to 12 slightly different keys and 3 or 4 master keys. These are generally sold only by the half or whole dozen and usually to the larger farms, where the owner expects one workman to have access only to certain places, while he and his foreman have access to all places. These are popular, and similar sets in American locks might also prove so.

Perhaps the most common price for a first-class padlock is from \$0.36 to \$0.55, and the bigger the lock the better the buyers like it.

HINGES.

In order that the reader may form an opinion of the difficulty of securing absolute data from the customhouse statistics, the records of hinges have been presented below in considerable detail, showing the various classifications that are to be considered. It will be noted that although there are six separate divisions two are of such high value that the importation was not specifically recorded, either because there were no imports during the years reviewed or because they were so small that they were combined with other records or because they were included in some such list as plated ware. The classification follows:

- (A) Iron or steel hinges (with or without small parts of other materials) that are not nickel plated, gilt, or silver plated.
- (B) Nickel-plated hinges.
- (C) Gilt or silver-plated hinges.
- (D) Brass hinges (with or without small parts of other material) that are not nickel plated, gilt, or silver plated.
- (E) Brass hinges, nickel plated.
- (F) Brass hinges, gilt or silver plated.

In the table below figures are given for six years, with the amounts supplied by the five principal countries of origin. The 1914 statistics are recorded parenthetically, as showing the effect of the European war. They do not, however, represent normal trade conditions and should not be used in comparisons or averages with previous years.

Country of origin.	1909	1910	1911	1912	1913	(1914)
DIVISIONS (A) AND (B).						
	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Belgium.....		88	888	1,254	1,085	(485)
France.....	4,936	6,208	1,109	10,762	18,452	(478)
Germany.....	121,744	284,228	167,288	120,728	184,771	(83,503)
United Kingdom.....	9,991	10,513	25,418	20,167	24,594	(12,147)
United States.....	310,743	262,350	367,523	360,991	301,796	(214,623)
Total weight.....	447,414	4563,387	562,226	513,902	530,698	(311,236)
Total value.....	\$44,453	\$150,811	\$55,959	\$51,203	\$53,230	(\$31,145)
DIVISIONS (D) AND (E).						
Belgium.....	13	82			330	(75)
France.....	430	77	269	732	321	(245)
Germany.....	1,856	2,241	1,951	4,260	5,074	(1,675)
United Kingdom.....	908	928	2,689	763	1,285	(575)
United States.....	875	811	846	996	739	(1,203)
Total weight.....	4,082	4,139	5,755	6,751	7,749	(3,773)
Total value.....	\$2,135	\$2,028	\$2,950	\$3,514	\$3,975	(\$1,926)

Divisions (C) and (F) are not specifically recorded.

More than half of all the hinges imported into Chile are of North American origin. An enormous number are used, as was stated in the early part of the section on building hardware, where it was noted that it is not unusual in Chile to have as many as 24 hinges on one door or window, because of the peculiar methods of construction. There was a time when the American hinge was considered quite the only thing that could be used, and probably the most popular article was one numbered 838. This style is sold in all sizes from 1 to 6 inches; the one most used is the 2½-inch, which is placed on windows, blinds, and interior doors. For exterior doors the paumelle from various sources is adopted. The No. 838 just referred to has been exceedingly well imitated in appearance by both Germany and Sweden, it being very difficult, especially for a person not versed in hinges to any great extent, to distinguish the American original from the European imitation. The copying has not only been in the mechanism of the hinge but also in the method of packing, and even the tag on the bundle is of the same color as that of the American make. In addition to all this, the European article is marked or quoted as hinge 838, but it is sold about 20 per cent cheaper than the genuine American hinge. Three varieties of this hinge are shown in figure 7. These hinges are from Europe, and the boxes from which they were taken are marked 838.

The smaller hinges of this type are also held in high esteem and are much used by cabinetmakers and other artisans.

PAUMELLES.¹

There is an important sale in Chile for paumelles, especially of the ordinary class of cut steel, which is sold quite cheap. A few come from Doubs, in northern France, and many similar ones are sold from Alsace. As an indication of the cost of the French article, it is noted that the net factory price, with packing extra, is as follows: 3½ by 2 inches, \$0.476 per dozen; 3½ by 2½ inches, \$0.539; 4½ by 2½ inches, \$0.651; 6½ by 3 inches, \$0.98. At one time the experiment

¹The term "paumelle" is commonly used in the South American countries to designate a certain type of hinge. In case the word is not understood by the reader, reference may be made to the article in the extreme lower left of figure 7 (facing p. 81). This shows clearly what is meant by a "paumelle."

was made of bringing this out in nickel plate, but the difference in price was too great. The additional cost for nickeling in the 6½ by 3 inch size was quoted by the factory at \$6.66 per hundred, an increase of about 50 per cent in the first cost to the retailer.

Another French model having a reasonable sale is known as "façon picardie." These are reinforced and of rolled steel, as is shown on the extreme lower left of figure 7. They are generally sold in 9, 10, and 11 inch sizes for heavy doors and the French net prices are as follows: 7½ inches, \$2.47 per dozen; 8½ inches, \$3.48; 10 inches, \$4.07; 10½ inches, \$4.63. These are finished only in the exposed cylindrical portion and have a brass bearing collar. The American ball-bearing type has no competitor. Fancy paumelles of bronze or copper, or nickel-plated, are hardly ever brought from Europe. Those used are generally from the United States, because of their excellent quality and satisfactory price. The French makers have attempted to compete in the nickel-plated article, but the effort has proved useless because of the prices asked, namely, \$0.55 each for the 7½-inch size, with screws and packing extra. These were of "façon picardie" model.

DOOR AND WINDOW BOLTS AND LATCHES.

These are so varied in type and the users have had such a wide choice that the articles purchased may be from almost any country. Few are made locally. There are American manufacturers who now make the up-and-down French window bolt. They also sell them, but one needs only to consult the commercial statistics of important foreign countries to learn how much of this line the Americans send abroad. The complaint against the American make is in regard to the form of the handle, which must be solid and smooth, and the fact that it differs in a few apparently unimportant details, making it difficult to use the American parts with other makes if repairs are necessary. It may be noted that this type of bolt is an exceedingly important article, being used on all houses of any consequence.

Occasionally there are two used on a window, or the upper one may be replaced by a chain, the lower being similar to the smallest of the three models separated by the figure "18" in figure 7—similar, that is, in the sense that the upper part, or handle, may be of the form illustrated, or a step on which pressure may be exerted by the foot. The total length of the lower bolt, if superimposed on the door, is generally from 6 to 12 inches.

The Spanish name for this article is "picaporte," and although the United States makes a very good wrought-steel pattern, very few of them are sold, because of the unusual form and the greater cost.

It may be said that there is no house in Chile without one or two of these (in some large buildings every door has two) and many windows are so equipped. The French firms of Vachette and Buiret Dubeaurain make many excellent varieties, which have been poorly imitated by manufacturers in other parts of Europe. The most popular model is the middle size (directly under the "E" in "Europe") shown in figure 7. This is 12 inches over all, but sizes up to 24, and even 36, inches are also used. Regardless of the length of the upper bolt, which depends on the length of the door, the 12-inch one would be used below and would cost net, French factory, ready to apply, but without screws, \$8.37 per hundred, but the case and packing

would be extra. Those for street doors are heavier, but nearly all have a brass cap on the handle.

In the coast cities and summer resorts it is not unusual to see these entirely bronzed or nickeled because of the damage done by the sea air, but if ordinary iron is bought it is painted and the result is apparently satisfactory. The smallest of the three shown in figure 7 is sold least of all. Sometimes they come nickeled, but it is cheaper to buy them plain and plate them in Chile, since there are good nickel platers there. The prices are almost exactly the same as those for the middle type, if in the same length. The one standing next to the door knob is for insertion in the door and is known as the thumb type, since one moves the spring by means of the thumb, raising or lowering the bolt thereby. It is a very good article, used on street doors particularly and often elsewhere. It is too expensive, but if the price could be reduced 25 per cent it is thought that there would be a good sale for it in Chile and elsewhere, as it is common throughout South America. It is known to the American makers as a sunk flush bolt. It is described in French bills as "Verrou a bascule 2589 a entailler, largeur 18 millimètres, avec gache." If it is 25 centimeters (9.84 inches) long, the net cost is \$0.224 each; if 80 centimeters (31.5 inches), \$0.35; and if 1 meter (39.37 inches), \$0.394. The plate for the reception of the bolt is included in the price.

The most common method for exposed fastenings for windows, especially in the better houses, is the full-length "españoleta," or French window bolt. In cheap buildings short bolts, either exposed or covered, would probably be used.

The American make is very strong and durable, but the bolts do little work and if no extraordinary strain is thrown on them will last for an indefinite period. The choice of such an article is very likely to depend on price and appearance; the fancy brass handles or other decorations used by continental makers have assisted them greatly in their sales. It is not to be forgotten that there is an enormous number of renters in Chile and also that many cheap houses are built to sell. The result is that cheap material is the rule.

The French make in the exposed window bolt is generally preferred when cost, appearance, and solidity are all considered. This is especially true of the Paris product made by Vachette. This firm seems to have specialized in all this line of fastenings, including the concealed automatic type, and its bolts enjoy an excellent reputation throughout the country.

Among the popular long models is noted one with brass handle, shown in figure 7. It stands at the base, under the "duck-beak" lock; except for the handle, it is made of thin stamped steel. Although the sample has a brass handle, more are bought with a black one—that is, entirely of iron. The pieces are sold separately, the half-round iron rods being secured in Germany or Belgium, where they are cheaper. These bars are shipped without perforations, thus passing the customhouse as rough iron. If the holes are already made, the duty is higher. These bars are generally shipped in lengths of 8 to 10 feet. A very similar German type having a nickel-plated curved handle, with all the rest of the attachments of very thin cast iron, is sold with or without the bars. It is not used except

in the poorest construction. One model having top and bottom clip, with three bridges, but no screws or bar, all cast except the nickeled handle, is sold net for \$17.40 per hundred, packing free. This is to accommodate a $\frac{1}{2}$ -inch half-round bar. For $\frac{1}{2}$ -inch round bars the price is \$14.80 per hundred.

The types discussed above are generally used for windows and interior doors. For street doors, which are heavier and larger, the bar is often of round iron and is bought locally, being carried in stock by nearly all hardware dealers. The round bar and the handle are then soldered, welded, or otherwise permanently fastened together, since the strain is apt to be great. Bars of $\frac{1}{2}$ -inch are used, but the sizes and prices of the common types are: 18 millimeters (0.71 inch), 256.5 francs (\$49.51) per hundred at French factory, with discounts of 8 per cent; 20 millimeters (0.79 inch), 283 francs (\$54.62); and 22 millimeters (0.87 inch), 385 francs (\$74.31). If there is a lock with it, the price is increased in each case about 90 francs (\$17.37) per hundred, at the same discount. These prices are quoted by Lejay Fils, Charleville, France.

The three bridges and two-point receivers accompany the street-door bolt described. The American wrought-steel barrel bolts for doors and windows are well liked. A small part of them have bent staple plates, but the majority do not. An exceedingly large percentage of American square or round spring bolts, having an eye head, are used for transoms. The common method of opening transoms in the United States is extremely rare in Chile; the operation is conducted by means of a string, and the transom is swung until it closes. It is in these two models that American manufacturers excel and get most of the business in door and window bolts in the Chilean market.

The bolts of European manufacture are exceedingly popular and are used on the bathrooms, pantries, and all sorts of closets and cupboards.

The latch, such as is used with a padlock in the United States, is not generally known here. If used at all, it is likely to be of round iron bent to fit over a large staple. The more popular method seems to be the use of two large staples that are in reach of a padlock.

As has been noted, most windows have interior solid wood blinds, and these require latches. In some cases ordinary steamboat shutter fasts are used, and at times the catch consists of a staple bent at a right angle, while the tail of the latch is hung in a box and this box is set completely into the shutter—not being visible from the room when the blind is closed, although the latch and catch are visible. Most of the models are French, and no great variety is available. One type is brass and has a finger hole from which an insert ring is lifted to open the latch. It springs back automatically. Whenever any attention is paid to appearance, this type is apt to be chosen. In the rural districts one is likely to find a very heavy bolt, or at least an iron one, since houses are built there in an exceptionally strong manner unless intended for the use of workmen. In the latter case probably a screen-door hook would be used. This, in fact, is very common in all cheap houses. Such a hook is so often used that it might be possible to replace with it a number of other varieties if the hook and eye screws could be made of brass or bronze, or even nickel plated. Solid bronze ones would be more apt to

replace the clumsy articles used in the better class of houses, and it is thought that if they could be made for a reasonable price they would enjoy a good sale.

The type first mentioned—automatic, with insert finger ring—is generally 45 millimeters (1.76 inches) long, although it sometimes comes in 50 millimeters (1.97 inches), probably from England.

DOOR SPRINGS.

The most ordinary variety of door spring used in Chile is a simple arm 16 to 20 inches long, the spring being spiral in form, fastened to the door frame. The spiral is generally inclosed in a black metal case. Reference is made to the sample appearing next to the extreme left in figure 7. These cost \$24.13 per hundred, net, French factory.

For doors opening both in and out, a vertical pin hinge at top and bottom is often used, the lower one, of course, being the heavier. These are generally of French make, and the model preferred costs \$3.86 per set at the factory. They are known as surface floor spring hinges. They are similar to the American model, and there is no apparent reason why the manufacturers in the United States should not be able to compete.

DOOR HANDLES.

The majority of these articles come from the French firm of Buiret-Dubeaurain, or are French models made in Great Britain or Germany. Reference is made to figure 7, where the three models of the most common type are shown. The upper one, referred to in the French catalogue as "Poignée de porte, cuivre, baton maréchal" is in very general use. The most common dimension has a bar of 18 centimeters (about 7 inches), although others of 16½ centimeters (6½ inches) and 20½ centimeters (8 inches) are not unusual. The preference for this type seems to be due to the fact that it has few curves and decorations, being easy to clean. It is also of solid brass pipe. The surprise and indignation caused by the discovery that certain door handles are of iron, brass or copper plated, is worthy of note. It is not considered good practice to plate iron handles with brass, but rather to use all brass if that metal is used at all.

These door handles have an enormous sale. It is highly doubtful whether there is any house in Chile costing \$700 or more that does not have one or more of these handles. The latter have long screws that will pass entirely through the door, to be held by a nut on the inner side, in order to prevent theft of the handle. Those that simply screw into the door are not considered worth while, and there is no use attempting to introduce them. The net factory price on the brass 18-centimeter (7-inch) model in France is \$1.70 per pair, without nuts. German factories make an article very similar to this at a lower price, but it is not as satisfactory and not used as much in the better houses because, it is said, of the small amount of metal put into it and the consequent weakness.

At times an article almost exactly like this in form, but nickel plated, is brought out. The nickel plating proves expensive, however, and it is generally preferred to have it done in Chile. The lowest one in the stack of three in figure 7 is nickel plated, of German make. The

difference in the thickness of the metal is clearly shown. The middle one shown in the illustration is locally called the "Turco," or Turkish model, and its principal difference is in the irregular, adorned shape of the handlebar. Its cost is practically the same as though it were smooth. The French maker referred to on page 124 also makes the brass door knob shown fourth from the left in figure 7. These have a large sale and are generally used on the inner street door, or interior doors. The knobs are turned smooth, generally very simple, and are sold in diameters of 6, 7, 8, and 9 centimeters (2.36, 2.76, 3.15, and 3.54 inches). The cost in the 8-centimeter size is \$0.34 each, net, French factory.

KNOB—MISCELLANEOUS BUILDING HARDWARE.

By reference to the statistics (p. 36) it will be seen that knobs of almost every variety come principally from Germany, next from England, and third from France, Belgium being the only country selling less than the United States. This is explained in large part by the origin of locks, and the fact that the German makers sell an enormous variety that will satisfy almost any taste and are reasonable in price. Practically all the porcelain knobs in the United States are round, while the majority of those sold in Chile are oval. In the event that an oval door knob can be produced at a competitive price, it is thought that it might be worth while to offer it not only for door handles but also for up-and-down window bolts, locally referred to as "españoletas." The quality of American articles is not questioned, but the disadvantages of having a cheap knob and connecting bar is not as apparent to the local builder as it would be to a purchaser in the United States or in Europe, owing to the fact that the European is generally very careful of his property and the American insists on having an article strong enough to withstand hard usage.

Practically all the new *door bells* now installed in Chile are electric, although those of the old type with which one pulls a handle, actuating a wire and causing a little bell to tinkle somewhere inside, are not uncommon. The ordinary pull type used in the United States are almost unknown. There is thought to be an excellent field for the installation of electric latches used by tenants in apartment houses of the large American cities, where the bell rings in an apartment and those within press a button that liberates the common door below. None have ever been seen in Chile by the writer, but he is sure that a small effort in that line would bring a good result, especially if directed toward architects and building contractors at the same time that the subject is taken up with merchants.

The *house numbers* used in Chile, as well as the street names, are often of zinc, made locally, and handled through the municipalities. The modern practice seems to be that the numbers should be of black enamel on a white background because of the better appearance, and the street names of cast iron because of the lower price. Several Chilean factories are equipped to do this sort of work, and it is one of the principal outputs of the local plants making enamel ware.

The market for *blank keys* is best shown by the statistics of lock importation (p. 35). Very few, if any, blanks are made locally, and the origin is about the same as that of the locks.

Shelf brackets are principally of American origin, and a discussion of the subject is hardly necessary. If they are cast iron it is highly desirable that the packing be done with great care. Owing to the very unsatisfactory port facilities of Chile, it is thought that a stamped steel article would be very well considered by the importers and merchants, whose loss from breakage would be materially decreased. Not all are cast iron, but many stores carry those of that material.

Hat, coat, and harness hooks come principally from Germany, though the cast-iron, black-varnished models come from the United States. The usual hat and coat hooks are of nickel-plated iron or of brass. There are also wire hooks in varied shapes and styles, sometimes brass plated. The French house of J. Perile et Fils, Paris, makes good hooks that are well received in Chile. Harness hooks of cast iron, very heavy and strong, come almost entirely from Germany and the United States.

Sash locks, balances, pulleys, and trimmings are not used except in very rare cases, since the type of window construction does not permit it.

BATHROOM SUPPLIES.

The poorer class of Chilean houses, if equipped with a bath at all, have nothing more than a smooth, galvanized-iron tank on the roof with a sprinkler and a valve that is opened or closed by means of a chain or spring. Where tubs and lavatories are installed—and this means in the houses of about half a million people, in addition to hotels and clubs—all the usual fixtures are found. The towel racks may be nickel-plated, as regards both the bar and bracket. At times a glass bar is used with two nickel-plated end brackets. It is not likely that wooden towel racks, consisting of a corner bracket with a number of arms, would be sold in Chile, because of the plentiful supply of wood and the high import duties. Brackets for arms should have a reasonable demand.

Soap holders are made of enamel ware, preferably white for the better grade of houses, and gray or blue for the poorer houses. Those used in the best construction sometimes have a bracket with a soap holder screwed to it. Sometimes the bracket is hooked to a nail, and the soap holder hangs below rather than above.

In view of the available statistics concerning the total amount of bathroom fixtures used, it is not thought that the sale of any particular kind will ever be great. It is well to offer whatever the factory may produce, but it is not believed that any great business could be done in smaller fixtures unless the same house sold bathtubs, lavatories, and wash-down bowls.

In the poorer houses the tubs may be of zinc or iron lined, and enameled if painted at all. They are never found, however, in the laborers' houses, while in the better-class houses there will ordinarily be two kinds—one such as those just described and the other of excellent quality, retailing as high as \$50 or more for the tub alone. The tubs used by the family, as distinct from those used by the servants, are as good as one will find anywhere in the world. The models are the same as those used in the United States, and the problem involved in selling is purely a matter of price and terms for a given quality. The same is true of the lavatories, and there is a market

for practically all grades, although it is limited to a total of 500,000 to 800,000 people. For home use the wash-down bowl is very common, and it is found in all hotels, clubs, and public buildings. The bowls themselves are imported, but the wooden covers may be either imported or made in the country. There is considerable criticism of the quality of the wood put into them, in the case of most of the equipment sold. It is thought that this is due to the imperfect connection between the two pieces of wood used to form the seat. These pieces often separate. Another noticeable error in the types generally sold is the hinge, which should be made of a non-rusting material if possible. Those made locally or coming from Europe usually have an iron hinge. There is a good field in Chile for the tanks, as the ones in common use are of cast iron, very heavy, and generally do not operate with ease; in addition to this, they are very noisy. It is thought that a thin iron tank with a reasonably thin copper plating, and internally constructed in such a way that they could be nested for shipment and closed with a copper ball float, as is customary in the United States, should have a good sale. This matter should be taken up through architects, after the maker has established an agency with one of the good houses that would carry them in stock.

Owing to the fact that practically no cooking stoves with a hot-water tank are sold in Chile, and it is not customary to have furnaces or other heating facilities, the bathroom must be equipped with a hot-water heater to be used in heating the water and room. These are made for gas and kerosene, and there is no reason why alcohol should not be used. The copper heaters come chiefly from England and cost from \$50 to \$60 apiece, retail. The nickel-plated ones with copper lining might be presented to advantage. The sale is really very great, considering the small population of the country, and no opportunity should be overlooked to secure selling arrangements, provided prices can be made about equal to or less than those of European manufacturers.

MAIL BOXES.

The ordinary type of mail box is entirely concealed in a building wall and consists of a smooth galvanized-iron box, with a cast-iron front through which letters may be inserted. This does not refer to the ordinary letter openings placed on doors, which are a practical counterpart of those used in the United States but say "Cartas" in place of "Letters." The cast-iron fronts of the city mail boxes are made locally. There is only a reasonable demand, as it is not customary to take advantage of such facilities except in rare instances, most people preferring to send their mail to the post office. The type of mail box used in the United States is found in practically all railway stations, and it is thought that this offers a slight field to American manufacturers, provided they will put on the necessary words in Spanish and eliminate all letters or signs referring to the United States Government. One of the surprising things that the writer met at one time in the interior of Guatemala—where some Spanish, but mostly Indian, is spoken—was a mail box marked "Letters, United States of America."

AWNING HARDWARE.

The prevailing type of awning fixture is operated with a handle similar to that of a grindstone, and the awning is raised by means of a wired cord or small chain. These fixtures are almost exactly the same as those used in the United States, particularly in the small towns, and their origin is likely to depend on the amount of merchandise imported at one time—that is to say, if 500 pounds of general supplies were brought out from France and a few awning raisers were required they probably would be bought at the same time. This refers to awnings for store fronts and not to those for windows. Frames and fixtures for window awnings are of the typical American model, and there is no reason why the American manufacturer should not compete satisfactorily. He may not be able to sell many of the iron frames, as in most cases they would be made locally. The mere fact that he might make them a little cheaper is not important when one considers the difference in import duty between the plain bar and manufactured iron. Also, the Chilean iron workers who make iron frames, grilled doorways, and balcony railings do work that is highly satisfactory to the local builder, whatever the opinion that might be held by visitors to the country.

BARN-DOOR FIXTURES AND HANGERS.

These are not in general use. The small consumption is in club stables, riding clubs, army stables, and storage buildings. The greatest demand is in the ports, where material is held in stock, where carts go in and out, or on the properties of foreign mining companies. Practically all stores use vertical roller doors in place of the sliding door, and in the rural districts swing doors are common. The nitrate companies of the north use a few sliding-door fixtures, and a small quantity is sold throughout the country, but nothing at all comparable to the amount that the same population would require in the United States.

As regards vertical rolling doors, the large majority are made locally, but the fixtures, such as the wheels, chains, and axles, are imported. It is unfortunate that a custom has developed of using a German or Belgian channel in which these doors slide. This is not made in the United States, but a considerable business could be done in it. There is no big single purchaser of the odd-sized channel, and if the material comes from the United States two heavier check irons must be used, which makes the construction more expensive.

There is only a small demand in Chile for all these American specialties, and education will be required before the old Spanish practice of making swinging doors of enormous size can be abolished. This education will hardly come through distribution of catalogues or advertising matter, since the numerical majority of consumers are not those reached by such means. It will rather come with the general development of American trade and the American entrance into mining, agriculture, and retail business.

An enormous advantage might be secured for the use of many articles of American hardware by locating a farm manager on large Chilean properties, where the wealthier class might desire to take advantage of the excellent training young men receive in modern

farming in the United States. It is recognized, however, that hardware manufacturers are in no position to forward a movement of this kind, nor, in fact, is any one except the Chilean farmer himself, who will perceive the benefits of such an enterprise in course of time. The point is mentioned not as a constructive possibility but rather as an explanation of the continued use of articles from the south of Europe that have been considered obsolete in the United States for many years.

WIRE NETTING.

According to the average statistics for 1912 and 1913, 43 per cent of the wire netting comes from the United States. However, since there is a difference of about \$50,000 in the customhouse valuation between the American imports for 1912 and for 1913, and local dealers express the belief that the largest amount of wire netting comes from England, it is probable that the large American figures for 1912 represent some special importation rather than the continuous American supply. The most important use of the galvanized-wire netting, which comes largely from England, is in construction and fencing. The better class of houses in Chile are built with plaster, stucco, or cement fronts, even though the walls be made of brick. In order to hold this, netting with a $\frac{1}{2}$ -inch hexagonal mesh is nailed to the walls and the plaster applied to it.

Other sizes include the following: $\frac{3}{8}$, $\frac{1}{2}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, and $2\frac{1}{2}$ inches; the diameter of the wire is proportional to the size of the mesh, an opening of $1\frac{1}{4}$ inches, for example, being made by 22-gauge. These are used almost exclusively for cages and chicken houses, which should not be underestimated, as houses are generally built around an interior yard or "patio" that affords ample space for keeping chickens, even in the large cities. Cages are also used to a large extent, as the Chilean is very fond of pets of the cage variety. The above netting comes 1 and 2 yards wide, and is galvanized after being woven. The local dealers believe that if it could be made in $1\frac{1}{2}$ -yard width a great deal of that type could be sold. The net cost at the English factory (Gotcher & Co., Birmingham) of the material now used, 50 yards long, 36 inches wide, is normally about as follows: $\frac{1}{2}$ inch, 23 gauge, \$3.75; $\frac{3}{8}$ inch, 22 gauge, \$2.74; $\frac{1}{2}$ inch, 22 gauge, \$1.82; 1 inch, 22 gauge, \$1.51; $1\frac{1}{4}$ inches, 20 gauge, \$1.57; $1\frac{1}{2}$ inches, 20 gauge, \$1.26; 2 inches, 19 gauge, \$1.

Square mesh is used for separating sand and certain kinds of grain. It is largely of German and French origin and comes in widths of 24 and 40 inches or 1 meter (3.28 feet). It is numbered by counting the meshes in an inch. For example, netting number 8 means that each mesh is an eighth of an inch. The numbers range from 3 to 12. They are all more or less common, as the uses vary according to size. These nettings are of black wire, or have been galvanized after weaving. The linear meter of the black netting, 24 inches wide, is sold at 20.8 cents by the retail dealers in Santiago.

There are also other tinned nettings for strainers, which are used considerably, and those of the well-known brass type, which comes as fine as No. 60.

The very fine wire nettings come in two colors, green and blue, and have never been seen by the writer in any other hues. They are

used in grocery stores to protect supplies and as a household protection against flies and other insects in the homes of foreigners. Among the Chileans screen doors and windows are used only in very rare cases. Food exposed for sale, if protected at all, is covered with a special inverted wire bowl for each article. Flies are very numerous, and a considerable agitation is going on regarding the fly pest and methods of minimizing it. It would probably not be difficult to introduce wire screening pretty generally in the better class of dwellings, especially in Santiago and Valparaiso, if the advertising pointed out the dangers of the insect. For advertising purposes it is worth remembering that, because of the seasons in the southern Hemisphere, the fly period begins during October and lasts until the following April. In meat markets there is no protection against the fly, and many of the very good houses have the stable in the same building.

Netting is shipped in rolls tightly wound, so as to occupy the minimum of space; a tin tag indicating the address and the dimensions of the material. The blue and green door and window netting requires protection from the weather and the splash of the sea water at the time of unloading.

Screen-door trimmings are not used, as the screen door is practically unknown.

NUTS, BOLTS, AND SCREWS.

Practically all the nuts imported into Chile are of German or other European origin, this condition resulting from the difference in price and, as regards the British manufacturer, from long experience in the Chilean market. Practically any general data referring to bolts may be safely applied to nuts, whether they have threads or not, although the American manufacturers have been able to sell a larger percentage of nuts and washers than of bolts. The importation of bronze or copper nuts is hardly worthy of note as a separate item, because the majority that come in are fastened to the bolt itself. Leather washers are not in very great use, except in carriage construction. It is not customary in Chile to quote either bolts or screws in metric dimensions, although no particular harm would be done in using such measurements. The fact that the system of inches is common is due to the established British standard in this regard. The pitch and thread are almost universally expressed in terms of the English Whitworth standards, although some of the large mining companies use American thread.

It is unfortunate that the customs record combines bolts and screws. In the combined classification it may be said that England and Germany easily sell 70 per cent of the total amount imported and in some years are able to place as much as 90 per cent. The United States fills orders to the extent of 8 to 15 per cent, and France sells the remainder.

The most important classification is the machine bolt, which has a hexagonal head and nut. This is used to a very large extent in iron work, and Europe is the principal source of supply. A few are French, but hardly any come from the United States, on account of the competition in price.

The most common thicknesses of machine bolts are $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, and 1 inch, and among these the $\frac{1}{2}$ -inch diameter, in lengths 8 to 14

inches, is the most common type, although those from $\frac{3}{8}$ to $\frac{1}{2}$ inch are sold in reasonably large quantities. The railways use a very large quantity of $\frac{1}{2}$ -inch bolts in lengths of $1\frac{1}{2}$, 2, $2\frac{1}{2}$, or 3 inches, and then in sizes varying by 1 inch up to an ordinary maximum of 10 inches. The machine bolts having a square head and nut are generally used for fastening timbers together. They are imported in considerable quantities from Germany, with a smaller amount from England and certain Continental countries. A small bolt factory is located in Valparaiso, but the production is small and the prices are rather high. The American article is held in high esteem, but ordinarily the prices are such that it can not compete.

The most common sizes are: Diameter $\frac{1}{2}$ inch by 6, 7, 8, 10, 12, and 14 inches below the head, Whitworth thread; $\frac{5}{8}$ inch by 6, 8, 12, 14, and 16 inches; $\frac{3}{4}$ inch by 8, 10, 12, 14, 16, and 18 inches; $\frac{7}{8}$ inch by 10, 12, 14, 16, 18, and 20 inches.

The most common sizes used by the State Railways are as follows: $\frac{3}{8}$ inch by 1, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, and $2\frac{3}{4}$ inches; $\frac{1}{2}$ inch by $1\frac{1}{2}$, 2, $2\frac{1}{2}$, $2\frac{3}{4}$, 3, 4, 5, 6, 8, 10, and 12 inches; $\frac{5}{8}$ inch by 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, 5, 6, 7, $7\frac{1}{2}$, 8, 9, 10, 11, 12, 13, 14, 16, and 18 inches; $\frac{3}{4}$ inch, all sizes from $1\frac{1}{2}$ to 20 inches; $\frac{7}{8}$ inch, all sizes from $2\frac{1}{2}$ to 20 inches; 1 inch, all sizes from $1\frac{1}{2}$ to 20 inches, though used scarcely at all; $1\frac{1}{4}$ inches by 23 inches.

The annual consumption by the railways amounts to about 60,000 bolts for repairs on that section included between Valparaiso, Santiago, and Puerto Montt, forming about one-sixth of the country's mileage. A rough estimate of the total consumption can be made on this basis.

In normal times there are small local manufacturers who make bolts in the sizes from 4 to 20 inches and sell them for 10.9 cents per kilo (kilo = 2.2046 pounds).

The common carriage bolt with an oval head is the most important article in this class, both because of its wide use and because of its price. It can be said that these are the only bolts in which the United States successfully competes, the American prices being very low. They are also brought from France, but in the past year practically all have come from the United States. All sizes are used up to 14 inches in length and $\frac{3}{4}$ inch in diameter. There is a continuous demand for the $\frac{1}{2}$, $\frac{3}{8}$, and $\frac{1}{2}$ inch diameters. The bolt is black and has the Whitworth thread. The railways use it very little and then only in the $\frac{3}{8}$ and $\frac{1}{2}$ inch diameters up to 12 inches long. Their total consumption does not reach 5,000.

Coach and lag screws with square or hexagonal head and gimlet point are widely sold and in various sizes. They are generally imported from France, where the lowest prices are quoted, though a good many have lately come from the United States. The common sizes are: $\frac{3}{8}$ inch by 2, $2\frac{1}{2}$, 3, and 4 inches; $\frac{1}{2}$ inch by 2, $2\frac{1}{2}$, $2\frac{3}{4}$, 3, 4, 5, 6, 7, and 8 inches; $\frac{5}{8}$ inch by 4, 5, 6, 7, and 8 inches. The railway consumption of this particular screw is limited to about 3,000 per year.

Stove bolts are imported with round and flat heads. The more common dimensions are: $\frac{1}{8}$ inch by $\frac{3}{4}$ and 1 inch; $\frac{1}{4}$ inch by $\frac{3}{4}$, 1, and $1\frac{1}{2}$ inches; $\frac{5}{16}$ inch by $\frac{3}{4}$, 1, and $1\frac{1}{2}$ inches; $\frac{3}{8}$ inch by $1\frac{1}{2}$, $1\frac{3}{4}$, and 2 inches. This bolt generally comes from the English firm of Guest, Keen & Nettlefolds. This make is held in very high esteem, but

the prices are higher than those quoted by American manufacturers. It comes with a nut, and is not bought otherwise.

Wood screws come from England, the United States, and France, in the order named. The English Nettlefolds screws cost 5 per cent more than the American, but are preferred for their excellent finish. The American screws are largely used because they are the cheapest and because they come very well packed. It is said, however, that they are not entirely satisfactory, inasmuch as the heads often break off and the thread is not so well finished as in the English. The French screw is made with metric measurements, and for that reason its sale is restricted and can almost be said to be negligible.

The flat head is the most popular type.

The common sizes are: No. 1, $\frac{1}{2}$ and $\frac{3}{8}$ inch; No. 2, $\frac{3}{8}$ and $\frac{1}{2}$ inch; No. 3, $\frac{1}{2}$, $\frac{5}{8}$, and $\frac{3}{4}$ inch; No. 4, $\frac{5}{8}$, $\frac{3}{4}$, and 1 inch; No. 5, $\frac{5}{8}$, $\frac{3}{4}$, and 1 inch; No. 6, $\frac{3}{4}$ and 1 inch; No. 7, $\frac{3}{4}$, 1, and $1\frac{1}{4}$ inches; No. 8, $\frac{3}{4}$, 1, and $1\frac{1}{4}$ inches; No. 9, 1, $1\frac{1}{4}$, and $1\frac{1}{2}$ inches; No. 10, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, and 2 inches; No. 12, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, and $2\frac{1}{2}$ inches.

There is no general sale for the sizes above No. 12, but the railways use up to Nos. 16 and 18 and up to 4 inches in length. They use also a fair amount of bronze or brass round-headed screws.

Galvanized screws with washers, for roofs, come almost entirely from England, and some merchants are surprised to learn that these articles are made in the United States. The American nail type—that is, the one driven with a hammer—is not usually considered satisfactory, probably because it is generally unknown. It is thought that a little effort in this line might prove of value, since it would tend to reduce cost, which is always an important point.

Belgium has easily led in the sale of track bolts, and the United States has been far behind. The reason is almost entirely that of price; when the American manufacturers can meet the Belgians on this point they can easily enter the Chilean market, which amounts to about \$150,000 per year.

NAILS.

There are in Chile about eight factories manufacturing wire nails, and these are scattered throughout the country where they may best serve the market. With the exception of one of the principal factories, which is operated in connection with a sugar mill, nearly all of these wire-nail makers are included in a syndicate, which one merchant controls almost entirely. These makers by no means supply the local demand, largely because of the fact that the demand varies and they have insufficient capital to carry anything approaching an adequate stock. Likewise, their product is not always as neat in appearance as the imported article. This is due to the fact that their installation is new and their men not fully trained, but there is reason to believe that they will get a greater control of the local market as time goes on. At times they offer their product from 5 to 10 per cent lower than the prices that might be demanded for the imported article, but in spite of this fact the United States and Germany continually compete in large orders. It is also the custom for certain large importers, such as big mining companies or persons selling to the railways, to purchase in such quantities that they are able to meet almost any local competition, especially if their freight rates are favorable.

The boxes in which the local nails are sold contain 20 packages, which are wrapped in coarse yellow paper of a very cheap variety and weigh 2 kilos (4.4 pounds), including nails and paper wrapping. This is not an uncommon practice throughout South and Central America, and it might prove advantageous to American manufacturers to consider the same form of packing. Hand work would be out of the question in the United States, but a machine might discharge into paper sacks and weigh automatically.

The market for cut nails is from 2,000 to 4,000 tons per year. Because of their gripping capacity, they are used almost exclusively in concealed woodwork and in adobe houses having wooden framing. Although Germany, England, and Belgium sell small amounts, their sales are practically nothing as compared with those of the United States.

Horseshoe nails.—The import records indicate that Germany has previously been the sole source of supply for horseshoe nails, but the local merchants seem to disagree with these figures, their impression being that Sweden sells practically the entire consumption. This is not particularly difficult to understand when one considers the great ease with which Swedish materials can be placed in Hamburg or Bremen, later to be rebilled and brought out on one of the many lines of boats that have previously come to Chile for the purpose of returning to Hamburg with nitrates. It is thought that the European sale of horseshoe nails has been due more to the excellent, low freight rates on boats that might otherwise come empty, and the great care exercised in developing the market, than to any other reason. Since August, 1914, one American maker has begun to sell in Chile, and it is locally reported that his nails are good and the prices reasonable.

Tacks.—About \$1,000 worth of brass tacks for carpets, pictures, and other uses are bought each year, coming packed in small packages. About two-thirds of these come from the United States and the remainder from Germany. The United States also sells other tacks in small packages, but does not sell very much in bulk. It was suggested by one dealer that American manufacturers offer their clients, in countries where the metric system is used, tacks and small nails done up in packages of 1 kilo (2.2046 pounds), including wrapping, and also that they offer tacks in bulk put up in nail kegs with thick staves. In unloading it is not at all unusual for kegs of light staves to be broken, and because of the general salability of tacks it usually happens that when a tack keg is broken nothing reaches the destination except the keg.

Corner or upholsterer's nails have previously come from England, Germany, and Belgium in part, but principally from France. They have six or eight sides and are generally of a blue steel finish, or, if of brass, are included in a classification not shown in this report. The use of brass tacks by upholsterers is very general, not only because much upholstery is done on new furniture, but because auction sales are exceedingly common and practically everybody disposes of furniture instead of storing it—buying other furniture at auction sales as soon as they require it. This means constant handling and the destruction of cloth and tapestry, with consequent repairs. These repairs amount to a great deal every year, and it is here that so many of the blue-steel and brass tacks are used. The actual sale of brass

tacks imported separately as such probably does not amount to an average of \$1,000 per year, but the sales are made through only two towns—Valparaiso and Concepcion.

RIVETS.

Rivets are all imported, but are very likely to come from the country supplying the structural steel (of which something over 30 per cent is from the United States), unless they be the small copper or zinc rivets used for leather or tinware, in which case a considerable part is brought from European countries. The average amount of steel or iron rivets is about \$30,000 per year, except in abnormal periods, when it might be more. Of this the United States sells about 10 per cent, Germany 20 per cent, Belgium 25 per cent, and Great Britain the remainder. This is said to be due primarily to the price and secondarily to the packing and quality. In the importation of bronze, copper, and composition rivets, Great Britain and the United States practically divide the entire business. Indications are that, though the prices may vary slightly between these two countries, their excellent quality gives them the lead.

STAPLES.

Staples for fastening wire fences or for use in vineyards are sold to the extent of more than \$50,000 per year, almost entirely through the ports of Valparaiso and Talcahuano (that is, Concepcion). This is because of the fact that wire fences and vineyards are not common in other parts of the country, although the sheep ranches in Punta Arenas require a reasonable amount, forming perhaps 10 per cent of the total consumption. The United States sells about 40 per cent, which is something less than the percentage sold by Germany. The only other country that has been really a serious competitor is Belgium. As has been shown in the case of other rather heavy articles, weight is a strong factor in favor of the European makers, because of their large empty tonnage coming out to Chile. Even \$50,000 worth does not imply a very important addition as regards ballast, but in a year it amounts to 1,600 to 1,800 tons. There is no obvious reason for the inability of the American manufacturer to secure a large percentage of the sales of fence staples, provided the kegs are strong, their weights full, and the prices reasonably constant. The distance to Chile is so great that, unless the dealer is pretty sure that the prices will not change greatly, he is usually uncertain concerning the best place to make a purchase. Staples are so easy to make that it would not be at all surprising to see local factories established in the very near future unless the price is such that it might be difficult for them to compete.

In addition to those used for fences and vineyards, there is a reasonable demand for very small staples locally referred to as brads. The total amount is about \$5,000 per year, in which Germany easily leads with about 60 to 80 per cent. The United States has a very small share in the business, this being the result, perhaps, of lack of attention to the less important dealers. Such attention has not been economically possible under the present selling methods. It is obvious that European houses having very close relations with many retail dealers can sell a comparatively large total of small articles,

when any individual sale would not be sufficient to tempt anyone. The price of the German article is said to be a little lower than that of other countries and the product rather superior. Observation would seem to indicate that the Germans use smaller wire and get more brads per pound. A comparison between the German and the American product would undoubtedly lead to the admission that the American article is better, stronger, and heavier, but that does not necessarily imply that it is worth more to the actual user, unless strength and added weight are really essential.

ENAMELED WARE.

The greater part of the enameled ware used in Chile is brought from Germany and Austria, those two countries selling more than 80 per cent of this item, which, in normal years, amounts to about \$600,000. The United States sells about 2 per cent, England 10 to 12 per cent, while Belgium and France supply most of the remainder. The fact that the central European countries supply the greater part of this line is due to numerous reasons. Primarily, they make an enormous variety, as regards not only appearance but quality and price as well. Practically all catalogues sent out by these factories give the same list price, though discounts may vary, depending on proximity to the coast and the possibility of arrangements for the division of foreign territory. In passing, it may be said that the French enameled ware is considered to be of excellent quality, but the packing is such that the makers are said to experience difficulty in selling it even at home, as many French merchants have previously secured supplies in Austria and Germany for local consumption. It is admitted by all concerned that the packing of the German manufacturers leaves nothing to be desired, and this may account, in a measure, for their leadership in this particular line. The reputation of the American article is excellent among the few merchants familiar with it, but the complaint is made generally that the prices are so high that the dealers are forced to accept a very small profit in order to compete. At the time this report was written they were selling a reasonable amount—particularly in the so-called agateware, or brown color—but in comparatively small quantities.

The enameled-ware line may be divided into two separate and quite distinct categories. There is, primarily, the first-class decorated type that is purchased only by people with a reasonable amount of money. This is generally expensive, but the appearance and presentation are excellent. The central European countries produce a wonderful variety, the ware being relatively cheap and packed so that it arrives in excellent condition. Bing Bros., A. G., of Nuremberg, Germany, are specialists in the decorated articles and probably hold the leading position in the Chilean market. They turn out complete sets of household service in various colors, decorated with considerable taste—covered with flowers, gilded filigree work, and Greek designs. One set that has a particularly great sale, and is presented in great variation as to color and finish, consists generally of seven pieces—washbowl, hot-water pitcher, night chamber, dustpan, comb tray, foot bath, and one large water pitcher, generally holding about 11 liters (11.62 quarts). Some of these sets are also sold in three to five pieces, the smaller ones mentioned above being

eliminated. Prices per set vary from \$2.50 to \$7.50 net at the factory.

In the finer decorated class a considerable quantity is also sold of series of covered cans or boxes of cylindrical form, which come in sets of four or six, nested together, each having lettering on the outside indicating what should be put in: "Café" (Coffee), "Té" (Tea), "Azúcar" (Sugar), "Sal" (Salt), "Pimienta" (Pepper), "Aji" (Red pepper), "Yerba" (Paraguay tea), and "Comino" (Cumin seed).

A great variety of candlesticks, egg holders, cuspidors, flower holders, cake molds, drinking cups, tea and coffee pots, and hot-milk pitchers are also sold, and, in fact, an infinite number of articles of kitchen, table, and other domestic use.

The most important kind of enamel ware—not only because of the enormous sale but also because of the low price and because it is handled by every grocery and hardware store—is that which is generally white both within and without if it is not to be put on the fire, or white within and blue without if for kitchen use. The price in Germany and Austria, as well as the models, may be said to be uniform, which is not at all surprising in view of the fact that practically all enamel-ware makers of those countries are associated in one syndicate. The French factory of Japy Frères competes to a limited extent in this line, having a few customers in Chile, but their packing is criticized.

Cacerolas.—The principal single article in this line may be said to be the "cacerola," which is a light, straight, seamless stewpan. The most common model is of cylindrical shape and has a small bill or spout. The cover may be tinned or enameled, and is often purchased in France or England even when the body is brought from Germany. The "cacerolas" generally come in series and are nested together in order that they may occupy as small a space as possible, since the freight rate would be enormous if they were shipped in any other manner. The effort has been made from time to time to make the pan very low as compared with the diameter, but the buying public does not seem to approve of this modification. The depth is equal to one-half the diameter, or a little less, with the inside white and the outside blue. There are numerous styles and types.

The net factory price in a number of cases, without the cover, is shown in the following table. The capacity is shown in liters (1 liter=1.06 quarts). The net price was obtained by taking one-quarter of the list price (which is in conformity with catalogues and discount sheets) and converting on the basis of 1 mark=\$0.238:

Diameter.		Capacity.	Net price, each.
<i>Centimeters.</i>	<i>Inches.</i>	<i>Liters</i>	
10	3.94	0.4	\$0.042
12	4.72	.7	.054
14	5.51	1.0	.063
16	6.30	1.5	.077
18	7.09	2.2	.092
20	7.87	3.0	.110
22	8.66	4.0	.128
24	9.45	5.3	.155
26	10.24	6.7	.187
28	11.02	8.5	.225
30	11.81	10.3	.268
32	12.60	12.3	.300
34	13.39	15.0	.345

The statement that the pans with lower sides are not usually preferred is not to be taken as an indication that they are not sold at all, but rather that the demand for them is considerably limited. They are generally used for frying and are sold at about 12 per cent less than the prices given above.

"*Ollas*," or light bellied seamless pots, come next in importance after the "*cacerolas*." Their depth is about equal to the diameter of the top or bottom. They are generally white inside and blue outside, and the cover may be enameled or tinned iron. Ordinarily the same cover used for a "*cacerola*" will fit the "*olla*." The most popular model is sold at the following prices, determined from the discount sheets:

Diameter.		Capacity.	Net price, each.
<i>Centimeters.</i>	<i>Inches.</i>	<i>Liters.</i>	
10	3.94	0.8	\$0.077
12	4.72	1.3	.086
14	5.51	2.0	.101
16	6.30	3.0	.119
18	7.09	4.0	.143
20	7.87	5.0	.178
22	8.66	7.0	.220
24	9.45	9.0	.261
26	10.24	11.0	.309
28	11.02	13.6	.356
30	11.81	17.0	.434

These "*ollas*" are often sold with a handle similar to that of a skillet. They are shipped in nested series. The two-eared type occasionally seen in other pots has but little demand in Chile.

Kettles.—The three important kinds of kettles seem to be the tea-kettles and the water kettles—the latter coming in two forms, the high type and the low type that has a perfectly flat bottom and is used on small gas, petroleum, or alcohol stoves. Since the American type of cooking stove is practically unknown in Chile and nearly all cooking is done on braziers among the poor and on gas or petroleum among the better class, the latter type enjoys the better demand. The diameters from 14 to 20 centimeters are the ones most sought. The first mentioned is sold at \$0.142; it has a capacity of 0.75 liter, or about a pint and a half. The one containing 2.1 liters is sold at \$0.196. The diameters given refer to the bottom of the kettle. In the taller kettles the diameter is said to be measured in the middle. The 14-centimeter diameter contains 3.1 liters and sells for \$0.185. The 20-centimeter diameter contains 4.7 liters and sells for \$0.28.

The shallow *ladle* is generally preferred half round and all white, in diameters varying by 1 centimeter from 9 to 14. The 10-centimeter, or 3.94-inch, diameter costs \$3.56 per hundred net.

Unrimmed *skimmers* are preferred all white. The 2-inch diameter is sold for \$3.15 per hundred net.

Plates for shirred eggs are measured for the diameter at the upper edge, and are sold in Chile in sizes of 12, 14, 16, and 18 centimeters at a list price of 55, 65, 75, and 90 pfennigs (\$0.13, \$0.15, \$0.18, and \$0.21), with a discount of 75 per cent at the European factory.

The so-called light *frying pan* has a very small demand in Chile, this article generally being preferred in iron.

Baking pans are used for fowl and meat; they are generally white on the inside and blue on the outside, and have a folding wire handle at each end. The popular sizes are 10 by 12, 10 by 13, 11 by 14, 12 by 16, and 13 by 17 inches.

Gridirons are used much more in Chile than in the United States, owing to the fact that so many people cook on braziers and over hot coals. The prevalent types are white on top and blue below; the bars are corrugated and have a light canal in which the meat juice may run to the ends of the irons, where there is another large canal that receives the juice and conducts it to another receptacle. The ordinary types have 8, 9, and 10 bars, although they are sold with from 6 to 12 bars.

Dinner and soup plates are white, with a small blue band, and the deep and shallow ones are sold at practically the same price. The popular diameters are 22, 24, and 26 centimeters (8.66, 9.45, and 10.24 inches).

Oval dishes, locally referred to as "*asafates*," are preferred in sizes 7 by 10, 8 by 9, 10 by 16, 12 by 19 inches. They have a reasonable sale. The oblong vegetable dish enjoys a fair sale, is found in almost every kitchen, and is sold all white or with a blue band. The lengths vary by 2 centimeters from 16 to 40 centimeters (6.30 to 15.75 inches).

Soup tureens with a half-round cover and short feet, all white, are sold in lengths of 18 to 28 centimeters (7.09 to 11.02 inches), varying by 2 centimeters at a time.

Sectional dinner pails are imported in various dimensions and with a varying number of compartments. The lower receptacle is supposed to contain live coals or fire to keep the dinner warm. The complete article is held together by a long handle that runs through slides on the sides and hooks over the bottom, forming a handle on the top. The usual sizes are about 16 centimeters (6.3 inches) in diameter and have four or five plates. Although this is the most common size, a number are sold of the 18-centimeter (7.09-inch) size, and a large number of the 14-centimeter (5.51-inch) size. As an indication of their cost, it may be noted that a four-plate, 14-centimeter type is sold for \$0.333 net at the factory; the four-plate, 16-centimeter is \$0.44; and the four-plate, 18-centimeter is \$0.476. These prices do not include the "*brasero*," or fire tray, which is worth \$0.065, \$0.077, and \$0.089, respectively.

Straight *mugs* with handles are sold in great quantity. Practically all the poor families use either the white or blue type. The better grade are all white and perhaps decorated. The common diameters are 7, 8, 9, and 10 centimeters (2.76, 3.15, 3.54, and 3.94 inches), and the height is equal to a little more than the diameter.

Conical *chocolate pots*, white inside and blue outside, with a wooden handle, and a cover with a hole in the middle in order that a wooden beater may be introduced, are sold in various sizes from 0.4 to 1.1 quarts capacity, the corresponding bottom diameters ranging from $3\frac{1}{4}$ to $4\frac{1}{2}$ inches.

Bellied *teapots* with hinged covers, white all over, varying in bottom diameter from 4 to 6 inches, or 10 to 16 centimeters, are sold in large numbers. Without the hinge there is a reduction of about 8 per cent in the price. Small milk cans, though generally made of tinned iron, are sometimes sold of enameled ware when milk is destined for the use of certain families. The most common sizes hold

from 3 to 9 liters (liter = 1.05668 quarts), and they are white within and sometimes white and sometimes blue without.

Covers for "cacerolas" and "ollas" are very simple, generally consisting of one stamped piece of iron that is afterward enameled or tinned. Usually a small handle ring is riveted or otherwise fastened to the top center. An idea of the price may be formed when it is noted that an 8-inch enameled cover is sold at the factory for 15 pfennigs, or something less than \$0.036.

The cover with a long handle is seldom used and is more expensive. As regards the relation between enameled and tinned covers, it is noted that the list price is the same, but the discount on the enameled ware is 75 per cent while on the tin it is 75, 20, and 5 per cent.

All of the syndicated makers in general, and one in particular, turn out a very great number of articles, in an almost infinite variety of color, with very slight differences in price. The principal hues are light blue; they have 75 per cent discount. Malachite white has 75 and 5 per cent, in large quantities. Blue and white, light blue and white, and brown and white have 75 per cent off, and to this net price is added $7\frac{1}{2}$ per cent for colanders or strainers but not for other articles. Practically everything that is made in one color is made in the others, except that blue and brown do not have expensive toilet sets and table dishes and are generally preferred for kitchen use—for all uses, in fact, by poor families. The marble-colored receptacles are held in high esteem by the better families for pantry use, and occasionally in the dining room or on the sideboard, and in the middle-class restaurants for tableware, but they are seldom if ever used near the fire. It is probable that the greatest sale for restaurant use and for general use away from the fire is in plain white.

All these articles are shipped in boxes 40 by 40 by 48 and very carefully stuffed with paper and straw, a great variety coming nested and the larger ones filled with smaller ones—that is, soap trays in pitchers, pitchers in "ollas," and "ollas" in crocks and buckets.

Round *washbasins* may be said to be the greatest single article of lavatory use. The simpler the bowl the greater the demand it seems to have, although very slight decorations, such as a thin band of blue along the white top, are considered proper. The common sizes measure 34, 36, and 38 centimeters (13.39, 14.17, and 14.96 inches) in diameter and are shipped in nested series varying by 2 centimeters from 12 to 60. The common 12-inch type is sold for \$7.13 per hundred, net.

Round-handled *ewers* are sold in great quantities and made in many sizes, the diameters most asked for being 15, 17, or 20 centimeters (5.9, 6.69, and 7.87 inches), all white, holding 2.6, 3.7, and 6 liters, respectively. The corresponding prices for these three sizes are \$0.185, \$0.22, and \$0.327.

Bed chambers are generally preferred in diameters of 22 to 24 centimeters (8.66 to 9.44 inches), all white, with a small band around the top, preferably blue or yellow. The 8.66-inch top diameter is sold for \$0.107.

Square *soap trays* are discussed in the section on bathroom fixtures. They may be hung against the wall, are generally 9 by 13 centimeters (3.54 by 5.12 inches) in size, white throughout, and consist of two pieces, a dish with a small barred tray. The round ones are generally 12 centimeters (4.72 inches) in diameter and wholesale at the

factory at 15 pfennigs, net, or \$3.58 per hundred, the square ones without back costing 25 per cent more and the square ones with back 50 per cent more than the simple round ones.

Toilet pails or slop jars are conical in form. The cover is inserted about 2 inches below the top and is also conical, with a hole in the middle so that the water may be poured against the cover and flow into the pail. Sometimes it has a valve so that the contents may be covered and, at the same time, added water be poured through. The bottom is set up from the foot, so that the dampness may not be transmitted to the carpet or other floor covering. This article is preferred in white, with a small blue band around the top edge. It is sold in top diameters of 24, 26, 28, and 30 centimeters (9.45, 10.24, 11.02, and 11.81 inches), holding 7.6, 8.8, 12, and 14.5 liters, respectively. Another type of toilet pail, which is rather expensive, has a cover formed like a cup, with a valve in the middle of the bucket, being a half cylinder with a willow handle. It is not thought that it would be worth while to make this particular article unless it had a good demand elsewhere.

TINWARE.

A great variety of tinware is sold in Chile. It is exceedingly difficult to compete in the large articles, however, because there is such an enormous number of low-priced tinsmiths in the country and the space that the tinware necessarily occupies increases freight rates to such an extent that it is often cheaper to have such articles made locally, so far as kitchen use is concerned.

Among the heavier articles of tinned iron, it may be said that milk cans occupy an important position. Many come from France, especially those of one pressed piece, with slightly conical form in diameters ranging from 24 to 32 centimeters (9.45 to 12.6 inches), varying 2 centimeters between each size. They are also sold in cylindrical form for 16-liter capacity, marked with an interior scale showing the liters of contents. Other articles used by dairies are cooling pans, low and very wide, in which the milk is allowed to settle before skimming. The straight can used in the United States is in cylindrical form, with ears and handles, and varies in capacity from 10 to 100 liters.

Other articles of this material are liter measures and their subdivisions, funnels, ladles, and skimmers. It will be noted that practically everything mentioned is for dairy use. The tin covers for crockery, pots, and pans are used, however, in rather large quantities, in many cases taking the place of the enamel or aluminum ones that might be expected to accompany the articles made of the two last-mentioned materials.

ALUMINUM WARE.

Articles of aluminum have not been seen in Chile in the past to the extent that one might expect, but the use of this ware is increasing and nearly all the members of the wealthier families or those in moderate circumstances have a few pieces and are generally buying more. The facts that they are very durable and easy to keep clean are important elements, and it is to be expected that they will replace to a very large extent many of the more expensive kitchen utensils, such as pots, kettles, etc., that have heretofore been made in enamel

ware. The present prices are not a great deal higher than those of enamel ware, as regards the cost to the ultimate consumer. An enormous profit is made locally in enamel ware and probably a smaller one in aluminum. In the United States there are certain manufacturers who produce most excellent sets of nested kitchen ware in aluminum, and it is thought quite likely that their study of packing would be of advantage to them in entering the Chilean market, because their consequent freight rates and the security of the merchant would be such as to permit them to compete in many instances.

About 60 per cent of the aluminum ware comes from Germany, 15 per cent from France, and the rest is about equally divided between the United States, Italy, and Great Britain. The total importation at the present time does not amount to more than \$15,000 per year, of which at least 75 per cent is used in the Valparaiso-Santiago district. These figures refer to the civil population, but there is a great field for this class of merchandise in the army and navy, which heretofore have secured most of their supplies in Europe. Owing to the fact that the material is very light, it is believed that a reasonable effort would bring results in the north of Chile, where prospectors and mining expeditions are outfitted.

It has not been thought necessary to attempt to show by illustrations the great number of articles made of enamel ware, aluminum, and tin. It may be assumed with very little fear of error that every article manufactured in the United States of these materials is a counterpart of one in the Chilean market, and in addition to the articles manufactured in North America there are many further varieties used in Chile. It would not be at all surprising if, with all the various sizes, shapes, and designs there were several thousand different articles.

The German prices are very low, the packing is conceded to be excellent, and one can hardly imagine anything that the manufacturers of that country do not offer. However, the fact that there is \$600,000 worth of business annually in Chile alone would seem to make it worth while for American manufacturers to study that market with great care.

OTHER DOMESTIC HARDWARE.

Sad irons and what are known as flatirons are made of cast iron, come generally from England, and the most commonly used numbers are 5, 6, 7, and 8. They are shipped in barrels that contain 144. The type containing a fire within, generally burning charcoal, comes almost entirely from Germany. These are in common use in practically all tailor shops and are generally rather heavy. The small irons, heated by an alcohol stove, are held in high esteem by the exceedingly small number of people who are familiar with them and can afford them, but they had better be termed articles of luxury rather than of necessity. It is generally conceded that their principal value is to travelers.

Iron and steel *skillets* are not reported separately in the statistics, and their total sale is not easily obtainable. They are found, however, in practically all hardware and general merchandise stores. No single merchant would be likely to sell a great quantity of them, but the fact that they are procurable in almost any retail establish-

ment, with the possible exception of drug stores and dry goods stores, would indicate that the number used is very great.

Food choppers, etc.—The small machines commonly used to chop or to grind food or vegetables, as well as the small presses for squeezing the juice from fruit, come almost entirely from the United States, notwithstanding the fact that a few Continental European manufacturers offer an "American model" at a price almost the same as the real American article. Owing to the fact that so many of these things are cast iron, great care should be used in packing, since they are quite unsalable if any of the parts are broken.

Fifty to sixty per cent of all the *coffee grinders* used in Chile come from the United States, and this in spite of the fact that almost every merchant handling this line complains vigorously against the American method of packing. The dealers state that one of their principal difficulties in competing with the European article is not that the first cost is greater in the United States, but because the final cost assessed against the grinder that arrives in good condition, to counter-balance the loss by breakage, is greater than the final cost of the grinder brought from Germany and England. A few will always be brought from England, but if the American manufacturer will make a careful study of the packing of coffee grinders there is no reason why he should not hold the market against all comers. Of course, the American percentage is largely made up of the better grade that are used on the store counters and grind the comparatively large quantities. The points of weakness as regards the American ability to compete are the same as in the very small and cheap models, which are likely to come from Germany, from France, and from England.

The most common models are made of wood and painted. They are cubical in form, with the handle on top. The small American models that are screwed to a table or board are held in high esteem and little by little are being selected by the ultimate consumer. It is thought that American makers should specialize in pushing this line.

Nonmetallic rat traps were at one time almost entirely of American origin, but the makers of central Europe have recently been selling more than the Americans. It is thought locally that the wooden rat trap is not as satisfactory as the one made of tin, because wood becomes impregnated with the odor of blood of the animals and ceases to tempt others to enter the openings. It is customary in Chile to boil these traps and thus remove the odor, and it is thought that the tin is easier to clean and disinfect. However, the type of tin mouse trap, similar to the four or five hole wooden trap, is not of as good quality as might be desired. Three out of the four springs of one purchased in the Santiago market were unsatisfactory.

In the wire cages used for large mice and rats it is almost impossible for American makers to compete unless a relatively low freight rate could be made, because so much space is occupied and because, in addition, they are so easy to construct that many local workmen when out of employment make a business of building them out of imported wire.

Traps for the larger animals are sold only in rare instances, since about the only animals that could be captured in them are the desert rats of the north, which attain an enormous size and are caught for

their skin, and the brown swamp rats of the south, which are as big as cats and are captured for their excellent fur.

The use of *stove shovels* is almost negligible except to a very limited extent in the Valparaíso-Santiago section and to a somewhat greater, though still unimportant, extent in southern Chile, between Talcahuano and Valdivia. The reason the sales are greater in the south than elsewhere is because that section of the country has been settled in comparatively recent years from northern and central Europe, where stoves are used, and also because of the fact that the greatest coal mines in South America are in that section. In some of the better houses in the cities and towns fireplaces are found, and in the country large braziers are often used, in which charcoal coals are employed to heat the houses. This demands the use of tongs and shovels, but as an actual fact these are adornments rather than necessities. The majority of the sets, consisting of a poker, shovel, and tongs, are likely to come from France, although Great Britain also produces a very satisfactory article.

CABINET HARDWARE.

Knobs and pulls for drawers, desks, dressers, and similar articles are purchased almost entirely in Germany. Minor quantities are brought from other countries, the United States selling perhaps 5 per cent, but this is due more to chance than to any other reason. The German manufacturers make knobs and pulls of almost every imaginable kind, as regards quality, appearance, and price. It is highly doubtful whether, in normal times, the American makers can compete with them in price on any given article unless it be of the very high quality, and in this case there is no local demand. The most common types are made of nickel-plated iron, wood, or bone.

At the present time the prevailing style seems to be very simple, and the articles are commonly called "American" or "English," more to indicate their simplicity than their origin. A better article, manufactured by the best cabinetmakers, is at times equipped with a type of knob or pull that they describe as "art nouveau." This has bolts or nuts and may be screwed through the outer frame, thereby securing strength and safety. Desks of the best class are often equipped with bronze, either natural color or gilded. It is not thought that the sales of any particular class would amount to more than \$1,000 per year, and these would probably be scattered among a hundred or more merchants.

In the preceding paragraphs, particularly those referring to locks, various illustrations have been presented showing the general types of locks, door catches, bolts, and fasteners used on commodes, desks, and other furniture. It will be recalled that the matter of price seemed to be the salient feature in connection with practically all these smaller articles, and although one might occasionally find a Yale or similar lock on a first-class desk or a case where valuable papers are filed, the use of such fasteners is exceedingly limited and it is not thought that a great business could be developed for some time to come.

It need surprise no one to know that many of the valuable documents of a number of countries south of the United States are kept

in wooden cases. This fact is particularly noticeable in the famous library at Lima, Peru, where the early manuscript history of the Spanish colonies, written and bound in parchment, is kept in the most flimsy cases.

Drawer escutcheons are so rare as to attract attention, and if they were used at all it is not unlikely that harness adornments would be selected.

HARNESS AND SADDLERY HARDWARE.

Under ordinary circumstances Great Britain enjoys greater sales in this line than any other country, because of the fact that styles in riding gear, coach supplies, harnesses, and similar articles are largely of English origin. Numerous persons of British birth have lived in Chile for many years and, in various instances, were active in the armies of the country during its early history. The domination of English styles does not refer so much to the working harness, because of the extremely simple character of the latter and the fact that practically all field work is done with oxen, the yoke being fastened to the horns with thongs. English leather has always had a high reputation, and it is natural that for coach use it should have been selected for quality as well as for style. The very fancy, adorned article is apt to come from France, but this class is small, of course, as compared with the great majority used. The United States enjoys a reasonable share of business because of the price and quality of the things put out—notably hames and the extra heavy, though simple, harness that is used for express wagons, ore wagons, and in logging work. An exceedingly large percentage of the harness locally used is made in the country, since the leather produced in Chile is of a high quality and it may reasonably be assumed that good hand workers in leather will be encountered not only there but throughout all South American countries. Many parts must be imported, however—such as adornments, the prevailing types of which are almost entirely of European origin.

Bridle bits.—The statistics of importation indicate that the United Kingdom sells by far the greater number of the bridle bits, although the United States does 25 per cent of the business so far as sales other than military are concerned. The army carries an enormous quantity, however, and it has in the past made practically all of its purchases in Germany. There is an opportunity at the present time for American makers of bits to enter the field, and it is thought that if due care is exercised they may be able to increase their sales very materially in this line. Samples of bits used by the army were transmitted with this report (see p. 184), and absolute reproductions of them should be attempted at as low a price as a reasonable profit will permit.

Spurs are apt to come from England in the better grades, but the big rowel types with the big shank are from Germany. The rowels are cut in enormous sizes that seem to please the laborer, but it is noted that this type of equipment is rapidly disappearing among the more intelligent men. It is generally believed that the big spurs do little damage to the horses, because of the fact that they are blunt. This probably holds true as long as the points are not sharp-

ened, but the sides of most horses are sufficient proof of the damage done by these spurs. The smaller types commonly used by riders in the western part of the United States, having rowels of $1\frac{1}{2}$ inches, and equipped with janglers, should have a reasonable sale, but should be offered in at least two qualities, one excellent and the other very cheap.

Two well-known types of *currycombs* are both French models, and do not differ from the models made in the United States sufficiently to attract attention. The prices do not vary greatly from the American.

Buckles.—Unusual circumstances have made it possible for the writer to present the more important data regarding the imports of buckles in much greater detail than has been possible in connection with the various other subdivisions of the report. It will be clearly seen from the table below that Germany easily leads in the sale of this article, France supplying the more fancy types and a few of the cheaper ones. The British sales are about the same as the French in value, but are principally of the plainer types. The real cost at the factory has not been obtainable, but one of the leading harness makers has informed the writer that the English article is cheaper than the American and equal in every respect. One of the leading hardware merchants has made almost the same remark in regard to the French product, and they both complained about the German competition. Most of the articles shown in figure 9 are made in Paris by Gustave Thirier, although some are German or English.

Buckles appear in the Chilean market in great variety, as will be seen by reference to the illustration just mentioned. The various classifications used by the customhouse are as follows:

- (A) Leather buckles, reinforced with metal, for leather workers.
- (B) Metal buckles for clothing, with or without tongue, nickel-plated or not.
- (C) Metal buckles for belts, garters, hats, or adornments.
- (D) Metal buckles of any kind, gold or silver plated.
- (E) Metal buckles of white metal, german silver, for belts, hats, and adornments.
- (F) Metal buckles of white metal, but gold or silver plated.
- (G) Metal buckles of bronze or copper, for clothing, plated or not.

The tables below show the imports of buckles by countries of origin and by ports of entry. The weights are in avoirdupois pounds, including interior wrapping. All figures of values are in United States gold. The 1914 statistics are recorded parenthetically as showing the effect of the European war. They do not, however, show normal trade conditions and should not be used in comparisons or averages with previous years.

Division (A) is not recorded specifically. Divisions (D) and (F) are imported in very small quantities—principally from Germany, with a very few from France and England. The principal port of entry for these is Valparaiso, and their average yearly value is \$200.

BY COUNTRIES OF ORIGIN.

Countries of origin.	1909	1910	1911	1912	1913	(1914)
DIVISIONS (B) AND (C).	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Argentina.....				132		
Austria.....		97				
Belgium.....		26	110	818	6,510	(243)
France.....	4,916	4,713	13,764	8,221	7,020	(3,040)
Germany.....	17,871	38,815	41,334	27,174	42,014	(14,019)
Italy.....	152	18	1,030		613	
Netherlands.....						
Spain.....		295	11	9		(11)
United Kingdom.....	11,301	11,575	13,772	6,991	11,097	(3,578)
United States.....	493	20	1,709	2,048		(79)
Total.....	34,733	55,559	71,730	46,006	66,641	(21,014)
Total value.....	\$7,592	\$13,857	\$15,961	\$12,862	\$17,085	(\$7,392)
DIVISIONS (E) AND (G).						
Austria.....						
Belgium.....			337	1,720		(20)
France.....	9,899	2,624	2,718	4,048	5,260	(3,785)
Germany.....	2,028	2,028	3,543	2,570	2,013	(1,144)
Italy.....	51					
Netherlands.....						
Spain.....				46		
United Kingdom.....	946	284	1,605	1,690	2,028	(267)
United States.....		15	18	4	4	
Total.....	5,924	4,951	8,220	10,078	9,305	(5,216)
Total value.....	\$4,057	\$3,898	\$5,955	\$6,214	\$6,489	(\$4,163)

BY PORTS OF ENTRY.

Ports of entry.	1909	1910	1911	1912	1913	(1914)
DIVISIONS (B) AND (C).	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>	<i>Pounds.</i>
Arica.....	196	183	176	119	154	(223)
Iquique.....	518	4,187	276	3,250	1,733	(1,056)
Tocopilla.....	53	287	106	214	604	
Antofagasta.....	44	750	315	613	2,573	(882)
Coquimbo.....	31	154	892	168	230	(524)
Valparaiso.....	23,126	35,245	46,046	29,242	54,108	(13,812)
Talcahuano.....	7,822	9,162	17,710	9,041	2,352	(985)
Coronel.....	1,063	1,872	22	1,329	950	(919)
Valdivia.....	1,880	3,719	6,187	2,030	2,546	(1,814)
Punta Arenas.....					282	(359)
Through the mails.....					1,653	(440)
Total.....	34,733	55,559	71,730	45,006	66,641	(21,014)
Total value.....	\$7,592	\$13,857	\$15,961	\$12,862	\$17,085	(\$7,392)
DIVISIONS (E) AND (G).						
Arica.....					13	(20)
Iquique.....	71	29	31	7	496	(26)
Tocopilla.....						
Antofagasta.....			15	82	31	
Coquimbo.....	15		37	134	53	(18)
Valparaiso.....	5,165	4,410	7,681	8,966	4,082	(4,686)
Talcahuano.....	494	280	141	800	4,299	(11)
Coronel.....	31	95	50	60	13	(15)
Valdivia.....	148	137	265		53	
Punta Arenas.....					225	(540)
Through the mails.....						
Total.....	5,924	4,951	8,220	10,078	9,305	(5,216)
Total value.....	\$4,057	\$3,898	\$5,955	\$6,214	\$6,489	(\$4,163)

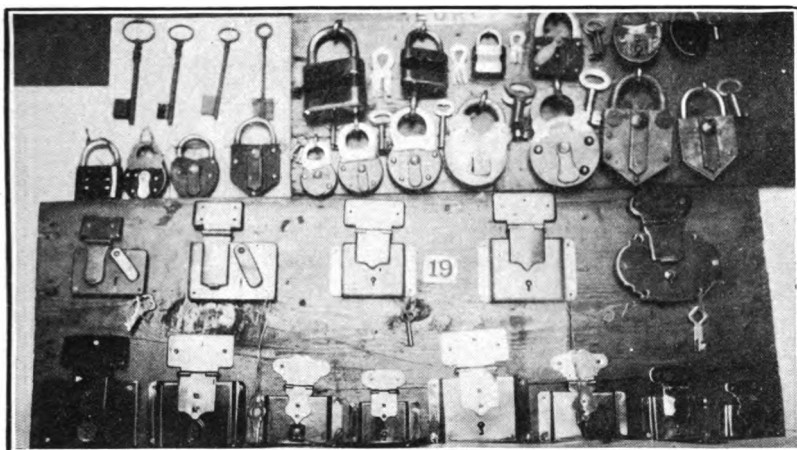


FIG. 8.—LOCKS, PADLOCKS, AND KEYS.

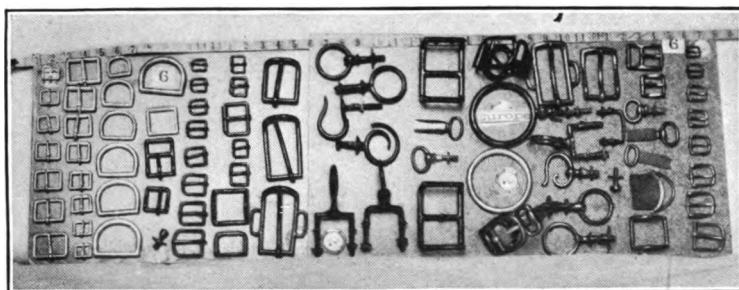


FIG. 9.—BUCKLES SOLD IN CHILEAN MARKETS.

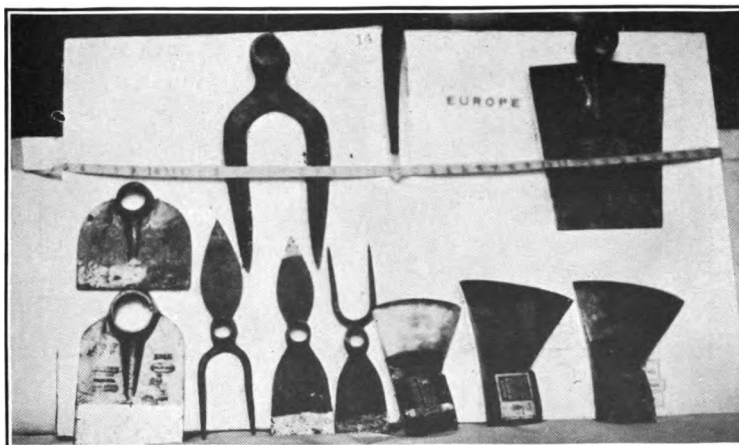
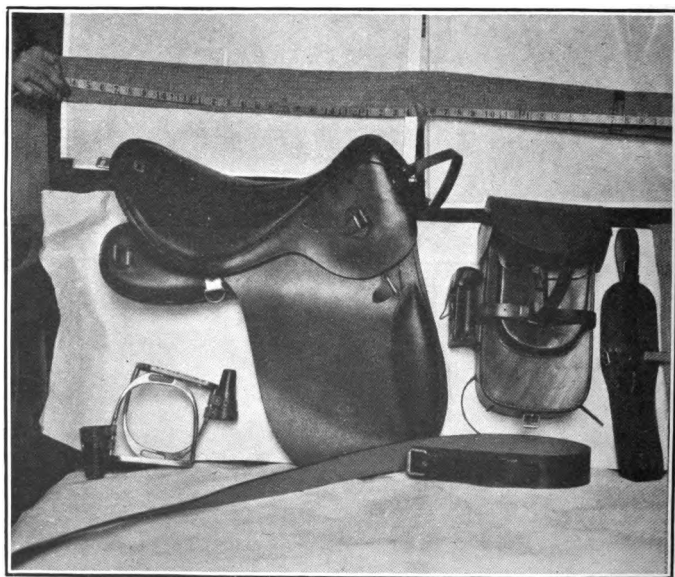
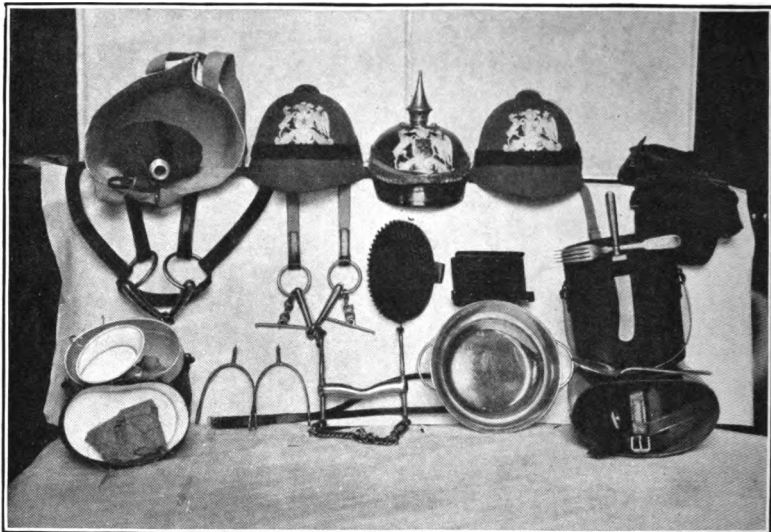


FIG. 10.—HOES, AXES, ETC.



FIGS. 11 AND 12.—CHILEAN ARMY EQUIPMENT.

Ornaments for harness or saddles are used principally on the best grade of equipment, such as the trappings on the carriages for Government officials. The demand is not great. As has been noted elsewhere, they are used in cabinet hardware and other similar lines. The very cheap decorations are in demand among cart drivers, who buy them, especially in the smaller sizes, for their harnesses.

Hitching chains are sold in many varieties. Germany has enjoyed by far the greater part of the business, because of price, appearance, and quality. A few are occasionally imported from other countries, but competition with the central European manufacturers in this line is exceedingly difficult. The same may be said of snaps. A reasonable number are brought from the United States, particularly of the better class, but among the cheaper articles the European makers offer the widest choice, apparently satisfactory and low in price.

Hame trimmings are largely from the United States, but the imports are not recorded separately. The amount used is small, in any event, because hames themselves are used only on a very limited number of harnesses. Practically all public coaches have an iron ring in the collar to which the tug is fastened, thereby eliminating the necessity of the hames, though throwing unequal strain on the horses' shoulders.

Whips.—The importation records indicate that England, Germany, and France lead in the sale of buggy and other whips, such as riding crops, toys, and similar articles. The varieties are enormous, and, although many of the whips themselves appear to come from the countries named, they are in many cases made from a peculiar Italian wood that lends itself easily to twisting and, after coloring, appears like ivory or celluloid. It is very flexible, splits several times, and can be twisted and braided. In addition, there are cloth-covered, shellacked, and wooden ones, and, in fact, all the varieties that one can find in American stores, as well as others not carried by them. The sales amount only to about 6,000 to 8,000 per year. Nobody can be expected to get a very large percentage of the business, as there is so much difference in the buyers and their ability to pay a fancy price. However, the mere fact that there is such a wide variety might indicate the possibility of selling a reasonable amount—particularly in the case of any manufacturer who had formed connections with a firm carrying these articles. Cattle whips are seldom if ever used, the local driver preferring to use a rope for this purpose. Whips are never used for oxen, goads being employed instead.

ARMY SUPPLIES.

One of the principal purchasers of harness and saddlery hardware, as well as of many other articles handled by merchants in this general line, is the Chilean National Army. At first thought it might seem that the demand would not be great, owing to the fact that the total number of the army is 22,000, exclusive of "carabineros" or rural guard. There is, however, obligatory military service in Chile, and the average period of enlistment is under one year. The result is that at the present time, out of a population of 3,500,000 people, Chile may count on about 300,000 trained men ready to take up military

service at a moment's notice. Large stocks of supplies are carried, and the maintenance of these supplies amounts to considerable sums. The articles that the army is prepared to buy in the United States are shown in the following list, which gives the Spanish name as well as the English, in order that interested persons may state definitely what they desire to bid on:¹

	Price in Chilean paper pesos.
1. Regulation saddle (casco de silla).....	85.00
2. Leather saddle canteen (viscachera de suela).....	30.00
3. Canvas saddle bags (viscachera de género).....	8.00
4. Leather surcingle (sobrecincha de suela).....	6.50
5. Hemp surcingle (sobrecincha de cáñamo).....	3.50
6. Cincha (Mexican) and rawhide strap (cincha y correa para cincha).....	{ 3.50 .60
7. Pair of stirrup leathers (par de aciones).....	6.00
8. Three saddle straps (tres correas para rollo).....	3.00
9. Pair of stirrups, with lance-bearing leather sockets (estriberas con portalanzas) ²	4.50
10. Lance strap (correa porta lanza).....	3.50
11. Sabre hanger (porta sable).....	4.00
12. Color-bearer's leather sockets (porta regatón)..... per pair..	4.50
13. Pair of spurs (par de espuelas).....	3.50
14. Dinner-pail carrier, leather (porta marmita de suela).....	
15. Web halter, leather throat, latch chain, chin strap (jaquimón).....	9.00
16. Rawhide hitching strap (ronzal de cuero).....	1.00
17. Halter bridle, ring bit, leather curb strap (bridón completo).....	12.00
18. Military breastplate or martingale (pretal).....	4.00
19. Halter bridle with chain fastened ring bit (cabezada y filete con rienda)....	{ 6.00 5.00
20. Bridle strap (falsa cabezada).....	5.00
21. Port bit with chain curb (palanca con cadenilla de barbada).....	{ 5.00 1.00
22. Reins for port bit (rienda de palanca).....	4.00
23. Canvas feed bag (morral de hocico).....	4.00
24. Leather-backed horse brush (escobilla con cubierta de cuero).....	4.50
25. Curry comb with leather sleeve (rasqueta con aze de cuero).....	1.00
26. Aluminum dinner pail (marmita de aluminio).....	4.00
27. Aluminum drinking vessel (jarro de aluminio).....	1.00
28. Water canteen (cantimplora).....	3.50
29. Tin pan (plato).....	1.00
30. Knife, fork, and spoon (cuchillo, tenedor, y cuchara).....	{ .20 .15 .15
31. Helmet for officer (cucalón para oficial).....	12.00
32. Trooper's helmet (cucalón para tropa).....	11.00
33. Helmet for cavalryman (casco caballería).....	11.00
34. Three spools of thread (white, black, and khaki) and one package of needles (tres carretillas de hilo, blanco, negro, y khaki, y un paquete de agujas)....	{ .12 .13 .20 .05
35. Large nickel-plated button for belt support (botón grande blanco descanso cinturón).....	.15
36. Large brass button for belt support (botón grande amarillo descanso cinturón).....	.13
37. Nickel-plated coat button (botón grande blanco con pié).....	.07
38. Nickel-plated sleeve or vest button (botón chico blanco con pié).....	.05
39. Large brass coat button (botón grande amarillo con pié).....	.05
40. Small brass vest button (botón chico amarillo con pié).....	.03

¹ Bids for army supplies are received by the Chilean embassies or legations when the ambassadors or ministers have been specifically instructed to receive them. One can file a request with the Secretary of War and Marine in Santiago, Chile, for the privilege of bidding on supplies from time to time.

² Plus price of porta-lanzas. Bids are asked on the complete articles, but the price at which they have been sold to the soldiers (at cost) is 4.50 Chilean paper pesos for the stirrups alone. Prices for the portalanzas, or lance-bearing leather sockets, have not been obtainable, since no extra charge has been made to the soldiers for them.

The more important articles mentioned above are shown in figures 11 and 12. Such articles as hackamores, however, are not shown. The prices given in the above list are expressed in Chilean paper pesos, having a value of approximately \$0.14 each. (See p. 19.) They represent the cost delivered in Santiago, Chile, with the exception of import duties, which are not paid. They can not be taken as absolutely fixed prices quoted by the factory, but in the event that American manufacturers can not quote prices, aboard ship in Valparaiso, at least as low as those shown, it may reasonably be expected that European competition will still be a factor of importance.

CARRIAGE AND WAGON HARDWARE.

Tree irons and hooks, single and double, are used in much smaller quantities than one might think. Practically all hauling outside the cities, as well as all farm work, is done with oxen whose sole equipment consists of a yoke and a rawhide cable for transmitting the tractive force to the two-wheeled cart. The large mining companies use mules, however, and practically all construction work is done with horses.

Many of the cheaper carriages and box coaches are built in the country, and some of these use whiffletrees, but in many cases the tugs are fastened directly to the vertical iron bolt that stands on a piece of metal fixed rigidly to the front axle. Fancy whiffletrees are used on elaborate stage coaches such as are employed by the wealthier families for driving about the country. The army also uses larger ones. They are sold in iron, steel, and bronze, and some cost from \$20 to \$30 for a full set of irons. These latter are rare, however, the average prices being a great deal lower.

Wagon-tongue irons are used to a comparatively small extent in Chile, because of the fact that the United States is the only source of supply for hickory tongues and very often a point is sold with them. In addition to the irons mentioned, which relate principally to vehicles pulled by two or more animals, there is a reasonable market for irons for shaft points, and, in fact, all the parts that might be used in coach and wagon construction. By referring to the table of Chilean industries (p. 28) it will be seen that there is a considerable local business in the construction of vehicles, the greater part, perhaps, being ox carts, though practically all classes are built except the most expensive. The principal difficulty in importation is the high duty on wood manufactures, the great space occupied by vehicles, the difficulty in unloading, and, finally, the lightness of the construction, except for city use. The country roads are hardly worthy of the name, and an ordinary light farm wagon, such as is used in the United States, would not be apt to travel very far.

Leather washers, as mentioned elsewhere, are not used to a very large extent except on axles and hubs, and not even there as much as should be done. In any event, Chilean leather is of a good quality, and if any unusual business should be developed in leather washers it would immediately be supplied by local tanners and leather workers.

Wagon jacks.—The fact that it is so expensive to import vehicles, that there are so many made in the country, and that equipment for handling such business is generally complete, leads to continual

repair as long as the parts will hold together. Almost every blacksmith, carriage maker, and owner of city coaches, as well as the wealthier farmers, have wagon jacks in their possession and continue to buy them from time to time. The types are varied, ranging from those of 200 pounds, perhaps, up to one capable of lifting a ton and a half. Comparative prices have been rather difficult to obtain, but the fact that American jacks are seen from time to time, as well as those from England and France, leads one to believe that competition is possible. Discussion with actual users also indicates that the American article enjoys a good reputation, and, as long as it can be introduced into the country with a minimum of expense consistent with safe packing, it may reasonably be assumed that the American makers should enjoy a fair share of the market.

Springs and axles are exceedingly important articles in the principal stores that handle heavy material for coach and wagon makers. The city pavements are very bad, and the roads are best left undescribed. France is the principal source of supply for springs, although it will be noted in the records that Germany and England sell a reasonable amount. The apparent reason for the preference for the French article is the greater attractiveness of price and quality, although those turned out by two or three other countries are all that might be desired. The principal French manufacturer is prepared to make considerable efforts to sell abroad, having a capital of about \$1,600,000. The price of the variety most used is 44 francs for 100 kilos, or \$3.86 per 100 pounds. A better quality is made, but at a higher cost; the demand is not great. The most common sizes are as follows:

Length.		Number of leaves.	Width.		Weight each.	
Centimeters.	Inches.		Millimeters.	Inches.	Kilos.	Pounds.
125	49.21	10	60	2.36	30.00	66.14
125	49.21	11	60	2.36	33.25	73.30
125	49.21	12	60	2.36	37.66	83.03
125	49.21	13	60	2.36	41.50	91.49
110	43.31	9	60	2.36	23.90	52.69
110	43.31	10	60	2.36	26.40	58.20
110	43.31	11	60	2.36	30.00	66.14
110	43.31	12	60	2.36	33.95	74.85

Among the springs of the dimensions given above the one that has the greatest sale is probably 125 centimeters (49.21 inches) in length, 60 millimeters (2.36 inches) in width, and composed of 12 parts. The so-called double, or scissor, springs are much more expensive, and the sale is very small as compared with the ones previously mentioned. They cost 50 per cent more than the article in common use. Among the simple springs the most common length is 120 to 125 centimeters (47.24 to 49.21 inches). The rear springs are often about 10 centimeters (3.94 inches) shorter than the front ones and have one leaf less.

The carriage axles that are most commonly used are referred to as "patent" if designed for coach construction and "half-patent" if intended for victorias or carriages. The first class are those that use oil as a lubricant, and the "half-patent," so-called, are greased. The French catalogues refer to both classes as "patent," but differ-

entiate between them by the name of the lubricant. The common diameters of the "patent" axle are 34, 36, 38, 40, and 42 millimeters (1.34, 1.42, 1.5, 1.57, and 1.65 inches). Those styled "half-patent," which are the more commonly used, have diameters 45, 50, 55, and 60 millimeters (1.77, 1.97, 2.17, and 2.36 inches), the one sold in greatest quantity being the 55-millimeter size. In the "patent" model, the price quoted by Sculfort & Fockede, of Maubeuge, France, for the 34-millimeter axle, complete with boxes and nuts, is 24.36 francs (\$4.70) net. The price of the "half-patent" in diameters from 40 to 55 millimeters varies from 29 to 52 francs (\$5.60 to \$10.04). The 60-millimeter size is obtainable only on special request, but is used somewhat in Chile, especially for the country roads. The price of the 55-millimeter size is \$4.57, list price, with a discount of 16 per cent, making the net cost \$3.84. It may be interesting to note that the cost price of one axle box for repair, to be used on the 55-millimeter-diameter axle, is \$1.06 net. The prices referred to are at the factory, but do not include packing. The charge for this amounts to 2 per cent, and the packing consists of wrapping bundles of straw around the ends in order to protect the sleeve or box. The total weight of the 55-millimeter "half-patent" axle is 55 kilos (121.25 pounds).

CAR HARDWARE.

Late prices on car hardware have not been available in the preparation of this report. As one rides on the railway trains and visits the freight yards, he can not help noticing the enormous variety of the fixtures used, some of them obviously of American origin, or at least built in the same patterns—such as door hangers, car seals, latches, hinges, toilet fixtures, hatracks, door and window latches, rackways, etc. There are a number of American passenger cars in service on the railways, as well as others brought out from England, and a considerable amount of repair material is being bought all the time. It does not seem likely that any passenger cars will be built in Chile for some time to come, but all the freight cars will be built there in a very short time. The principal contractor is the Astillero Behrens, in Valdivia, and the manager is a German engineer who has lived in the country for about 15 years and has established a very large and excellent shop for working on ships, cars, and all sorts of heavy equipment.

Practically all supplies used in car construction can be sold in small lots from time to time, although heretofore there have been no refrigerator cars. The caboose side lamps are of European model, as well as the basket racks and seat fittings. It is thought possible that a good market could be developed for reclining chair seats, with the hope of finally eliminating the solid cross seats in passenger cars. The seats now used are very similar to those found in the second-class, or smoking, cars in the United States, especially on the western roads. They have reversible backs and are covered with a fair quality of leather.

CHAINS.

An examination of the statistics of 1912 discloses the fact that chains are reported in a number of separate classifications. The first item of \$25,942 refers to those of iron and steel whose circumference does not exceed 40 millimeters (1.57 inches). These are

destined for tugs or parts of hames, for use with plows, and for other purposes not specified. The second item is made up of three classifications, one being chains for lamps and doors. These amount to \$385, of which Great Britain sells \$250. Another is chains for horses, dogs, etc., amounting to about \$5,000, of which Germany sells \$4,600. The remainder of the second item consists of steel or iron chains of various uses, exceeding 40 millimeters (1.57 inches) in circumference. In this connection it may be noted that if the circumference is 40 millimeters the diameter will be slightly more than half an inch. The largest part of the second item, then, consists of chains of various uses with diameters of more than half an inch.

The third item consists entirely of iron or steel chains of more than half an inch diameter, and the only reason they are separated is because of the fact that the import duty on them was changed in the middle of the year 1912. Out of the total amount imported, then, there were \$65,000 worth of the heavy chains of more than half an inch diameter.

In the year 1913 the imports of metal chains of various uses, of less than half an inch diameter, amounted to approximately \$20,000, of which Great Britain sold \$15,600, Germany \$2,600, Belgium \$1,600, and the United States the remainder, or \$200. Chains for lamps and doors amounted to \$800, of which Great Britain sold \$550 and the United States the remainder. The total of the chains for animals, principally horses and dogs, was something less than \$6,000, and three-fourths of these sales were by Germany. The remainder came from England, the United States selling practically none. Heavy chains of more than half an inch diameter amounted to more than \$46,000 in 1913. It is notable that about the only class in which the United States has been able to do very much is that of chains for industrial purposes. The heavy chains are generally sold by weight, and the prices of European competitors are a matter of such common knowledge to American makers that it is not thought necessary to discuss them in detail.

Very few bicycle, weldless-link, or other patent chains are imported, except by houses that have sold or imported machinery on which chains are to be used. It therefore does not appear to be worth while to spend any money in attempting the sale of such an article.

Halter chains are used to a reasonable extent, but are not as common as in the United States, it being customary to use them only on saddle horses or on army equipment.

Hobble chains are very rare, most people preferring straps because of the local availability of the material and the difference in price.

The few porch swings that one sees in Chile are generally equipped with ropes.

SPORTING GOODS.

The principal field sports in Chile are horse racing, cycling, football, and tennis. All the supplies connected with cycling are used to a limited extent, but this is not a popular sport in the sense that the poor people can take advantage of it, the cost of the machines being altogether too high for their purses. Football is played by nearly all men and boys at one time or another. The prices paid for the balls range from \$2 to as high as \$7 or \$8. The majority of the

balls are sent out from England, because it is customary there to use the round one as distinguished from the oval one so familiar to Americans.

The tennis supplies are apt to be from England and are generally of exceedingly good quality. The writer regrets to say that the few American tennis rackets that he has seen in Chile are most unsatisfactory—the gut being of very short duration and the wood splitting in many cases within a month's use. The only importation of tennis balls from the United States of which the writer has personal knowledge was an order of one dozen purchased by the head of a business house of some importance, partly for his personal use but ultimately with the hope of introducing this article in the club of which he was a member. Only 11 balls arrived and that fact, combined with the rapid deterioration of the American racket ordered at the same time, deterred him from going any further with the matter.

A number of parlor games are used by the children, such as lotto, parchesi, halma, dominoes, and lottery games in which dice play a part. Adults generally play with cards, chess, and dominoes. Checkers are not used to the extent that they are in the United States, but nearly every club, drinking place, and amusement room has one or more sets of dominoes, either plain or fancy, which appear to be in constant use. Pool and billiards are played in clubs and halls dedicated exclusively to that pastime. Most of the tables are very large, and are brought from England.

One sport that has been common among the children for years, and seems now to be growing in popularity among the adults, is roller skating. Very high prices are paid for skates if times happen to be good, the writer having seen some pairs sold for as high as \$10. The principal source of supply is Germany and England, but the best classes of American roller skates are generally admired, particularly those that have interchanging ball-bearing wheels and are of rather simple construction. Those for ladies have ankle supporters. All types are sold, even to the very cheapest, because of the custom prevalent among the children of skating on the streets. Practically no child has two roller skates, generally using one to ride on and pushing with the other foot. It may be interesting to note that one American salesman has recently sold 500 pairs of roller skates, and it is thought that, in spite of the world crisis, the present might be an auspicious time to introduce supplies in the cheaper grades, for skating rinks as well as for children.

LAMPS AND LANTERNS.

Lamps and lanterns form one of the largest single items of hardware, partly because of the fact that the customs classification includes all the following items:

Kerosene lamps, with or without reflector, chimney, or globe; to fasten to the wall. As above, but of tin.

Lamps and lanterns for kerosene, with or without chimneys, globes, or counterweights; to be hung.

Lamps with or without counterweights, lanterns, hooks, arms, elbows, or other similar parts; for gas or electric light.

Kerosene lamps with brass or copper container, with or without parts of other material; for the table.

As above, nickel-plated.

Kerosene lamps and lanterns, with or without parts of other material, with or without counterweights; to be hung.

Lamps with or without counterweights, lanterns, hooks, arms, elbows, or other similar parts of bronze or copper; for gas or electric light.

Hand lamps, or table lamps entirely of glass, with or without metal collar or burners, with or without corresponding articles.

With a glass container, cut or smooth, with pewter, bronze, or copper stands, with or without parts of other material, with or without corresponding articles.

As above, with or without a stand of other material, not including white metal, nickel, or German silver.

Kerosene glass lamps, with or without parts of other material, with or without reflectors, or corresponding articles; for the wall.

There are numerous retail stores devoted to the sale of small heating fixtures, lamps, and accessories. This item of lamps is not only important in itself, but stands out prominently as the cause of most complaint regarding the packing by American manufacturers. It is thought by the writer that at least 50 per cent of the complaints against American hardware dealers are based on the methods by which various parts of lamps are shipped—sometimes because the boxes are too large, sometimes because they are too small, but in the great majority of cases because merchandise arrives broken and otherwise in bad condition.

The fact that from \$10,000 to \$20,000 worth of small stoves (sometimes called lamps) and various types of electrical supplies, tin and table lamps are sold from the United States is an evidence that American manufacturers can compete in some lines at least.

The classification is so large and there is such a wonderful difference in the various articles that a comparison of prices would serve no good end. However, it is thought that extreme care in shipment, with the study of methods for reducing the cost to the minimum consistent with good business, would tend to improve the situation and bring about more sales on the part of the American makers.

Their principal competitor is Germany, which sells perhaps 80 per cent of the entire annual consumption. Manufacturers of special lines who are familiar with the German prices and products can form their own opinion as to their individual ability to compete in the Chilean market much better than the writer is prepared to do.

Miners' lamps are almost entirely from the United Kingdom, the United States selling practically nothing.

Gas and oil burners are of German origin in almost every instance, except where the investment of British capital has affected the origin of the supplies for various large consumers.

ABRASIVES.

Concerning *hones* it may be said that the United States enjoys a reasonable share of the business, but since the total amounts to only about \$700 a year there is apparently no great field for development.

Emery stones may be from Great Britain, Germany, or the United States. In the past the European countries have easily led, but the sales of the American producers are slowly increasing and this would seem to indicate that they are able to compete to a reasonable degree. The business is, however, very small.

Sandpaper is the largest single item in abrasives, and the annual business is between \$25,000 and \$30,000. Of this the United States

sells \$16,000. The closest competitor is Germany, and a very small supply is brought from England. The quality of the American product is considered very good, and the prices are reasonable. However, there is room for improvement in the southern part of the country, where business might be done with Chilean merchants to great advantage.

PAINTS AND BRUSHES.

Manufacturers of paint will have no difficulty in understanding the practical impossibility of preparing a detailed report on paint in connection with a subject of such a broad nature as hardware. However, it is interesting to note that the total amount imported annually is more than \$700,000, and that Germany has led in nearly every class, with the exception of the common article prepared with water or oil, which alone amounts to considerably more than \$400,000 per year. In this item Great Britain leads with something more than \$300,000 per year, Germany following with \$85,000, and the United States with but \$15,000 per year. The ports at which this common paint is generally imported are Valparaiso with \$250,000 and Talcahuano with \$65,000, the remainder going principally to Antofagasta, Iquique, and Valdivia, in the order named. It may be said without fear of contradiction that 40 per cent of all the paint used on houses is sold in the six weeks previous to the 18th of September. This is because September is springtime, because the 18th of that month is the anniversary of Chilean independence, and because the law requires that all houses, at least in the cities and large towns, be painted immediately previous to Independence Day (that is, within the preceding six weeks) and be equipped with a Chilean flag. The result is that large amounts of merchandise must be placed on exhibition not later than July—preferably in June—since building begins at that time. Of course, the climate permits construction all the year round in the north, but in the southern part it is limited because of the continual rains during the Chilean winter. Paint delivered in the month of October would be of very little value for months to come, unless it were sold for construction purposes or to the railways for cars.

This being true, it follows that the sale of paint brushes is also seasonal. Great varieties are sold, ranging from the very broad and thick primer brush to the lead-pencil size. For painting buildings workmen generally employ the flat brush, commonly referred to as "paleta." This is a common type in the United States for white-washing and is also used extensively for the same purpose in Chile. It is a standard practice throughout all of South and Central America to whitewash with lime to a very great extent. A brush of this type is made in Chile about $\frac{3}{4}$ inch thick, in lengths of 4, 5, or 6 inches, having pigs' bristles and cows' tails in the brush itself. The hair is about 4 inches long. The handle is short, and the brush is sold by the local merchants at \$0.84, \$1.06, and \$1.24 per dozen in the three sizes previously mentioned. Samples of the brushes have been sent to manufacturers of Central Europe in the hope of reducing the cost, but they were unable to compete. The brush commonly used to paint with oil is locally referred to as a "German brush;" it is round, thick, and bound with stout string for about half the length. The hair that is visible is taken from some animal, but that which is

concealed is generally a mixture composed for the most part of vegetable fiber. It was customary at one time to put up brushes of this type with a copper ring, but this practice was virtually abandoned in favor of the chalk line binding. Common sizes are numbers 16 and 18. Up to three or four years ago these numbers referred to a larger brush, but little by little the manufacturers have reduced the size until to-day the 18 size is what the 16 was some years ago, and all the rest of the sizes have gone down in the same scale.

Lately a number of these brushes have appeared on the market made of natural black animal hair, but they cost perhaps 10 per cent more than the old style. Most painters, however, seem to prefer the cheap article, even though it be inferior in quality.

The smaller paint brushes, locally called "pinceles," are used in enormous quantities, most of them having a long handle, a brush with pig bristles, and a bristle binder of tin. These also come in flat shapes. The small, round brushes are sold in all sizes from 1 to 20, number 1 being 3 or 4 millimeters (1 millimeter = 0.03937 inch) in diameter and number 20 about 25 millimeters.

Another brush that is not at all uncommon bears the name of "codfish tail," on account of its peculiar form. It is flat, about 5 or 6 millimeters thick, of various widths, and has a short handle. The most common sizes of these brushes are 8, 12, 16, 24, and 30 lines wide (a line = $\frac{9}{100}$ of an inch). White bristles are used in the "codfish-tail" brush. Other types commonly seen are small brushes for decoration. The variety is enormous, and comparative prices would be of no value whatever. However, it may be of interest to note that the hair used is generally taken from the ear of an ox, or something of equal fineness.

The great majority of paint brushes used in Chile are imported from Germany, principally from Nuremberg. The German prices are uniform, regardless of the place of manufacture. If the paint-brush makers are not syndicated, the effect is the same, at least.

SUNDRY TOOLS.

This classification is practically indeterminate. It does not include such tools as might be called machinery—the latter being subjected to a different rate of duty—but rather includes many repair parts of tools, and articles that are used in factories of all kinds. This class is distinct from the tools used by farmers. It is really not worth while to attempt to separate the amount shown into individual items. It is pleasing to note, however, that the United States sells more than a quarter of these sundry tools. It is not difficult to believe that, if proper steps should be taken to increase sales in other allied lines, a corresponding increase in sundry tools might be reasonably anticipated. Germany ordinarily sells more than the United States, as does Great Britain, but this is to be expected when one considers the strong commercial, banking, and shipping relations that unite those countries with Chile. The field looks as promising in sundries, however, as it does in specific articles that have been considered in greater detail. About half the German sales are in southern Chile, probably a quarter in the nitrate fields, and the remainder in Valparaiso and Santiago. Great Britain makes its principal sales in the nitrate fields, Valparaiso, Santiago, and to the mines.

Screw drivers, which have no separate customs classification, are imported largely from the United States. The cheap models with wooden handles are the most salable. The State Railways use a better quality and in much larger sizes than the general trade. The Germans supply a type of all-steel screw drivers with the handle forming a part of the one-piece construction. They are used only in the smaller sizes, however—say from 3 to 6 inches, total length.

Automatic screw drivers are American or English, but their sale is limited, since the workmen can afford only the cheapest tools.

MARINE HARDWARE.

The Chilean market in the line of marine hardware embraces only the simplest fittings and parts. There is nothing individual about any of the hardware used. As regards door locks, Valparaíso dealers state that they carry no special types, since in the replacement work, which alone is done there, any ordinary type of lock serves the purpose.

The one opening of value for marine hardware appears to be the navy contract. One firm, which has heretofore held this contract, has made a job lot of the remainder of its stock and turned it over to the navy at a low price to clear. It is probable that but one new firm will go in for the navy contract, bids for which are advertised late in the calendar year.

There are no pleasure craft along this part of the coast, so the item of fixtures to water craft is reduced to oarlocks, chocks, etc., used on lighters and work boats. In general, with the exception of lanterns, no grade of marine hardware is carried above the most ordinary type of galvanized iron—apart, of course, from the navy contract, which might call for brass or nickel.

The writer has forwarded to the Bureau of Foreign and Domestic Commerce a complete list, in book form, of every class of article used by the Chilean Navy, and it will be loaned to interested persons on request. (Refer to file No. 948.)

Diving suits are generally from Great Britain, although France and Germany combined sell about 10 per cent of those used. About 70 per cent have been sold in Valparaíso, 20 per cent in Coronel, and the remainder in Valdivia. The average value per year from 1909 to 1913, inclusive, was \$5,617, and in 1914 \$3,300 worth were brought in.

BICYCLES.

As has been previously noted, bicycles are used to a reasonable extent, but as a sport more than for daily practical use. The imports are not great. Most of the people who repair bicycles seem to be French, or to have worked for Frenchmen, and repair parts are generally from that country. French wheels seem to enjoy some preference for racing because of their light tread. The double-tube French tires are used almost exclusively and the American single tires do not fit the European wheels. One American article that seems to be very popular is the monkey wrench. There should be a good field for the introduction of American coaster brakes. The types used largely at present are English or French, and they are expensive, elaborate, and easily damaged.

STOVES.

Merely as a matter of general interest to dealers in small stoves for family use, it may be stated that various stoves in Chile are made from slats of wood cut from boards $\frac{3}{4}$ to 1 inch thick, sustaining petroleum cans that are, in turn, plastered with clay. The stove without an oven is retailed for 3 pesos, or \$0.57, and that having an oven is sold for \$0.66, American gold. It is not thought likely that an American manufacturer can compete in this particular type of stove, which, strange to say, is used in great quantities among the poor and ignorant throughout the entire west coast of South America.

COFFIN HARDWARE.

The last item to be considered in this chapter will be casket trimmings and iron wreathes. For the ordinary person it would be somewhat difficult to distinguish between door grabs and coffin handles. Coffins of the finer class are principally from the United States, and those of the cheaper class are made by the local carpenters to measure. Few, if any, ordinary caskets are carried in stock. The total importation of trimmings, apart from caskets, may in some years be as high as \$10,000 and in other years practically nothing. Trade is very irregular and the source of supply varied.

It will be noted from the statistics that a few bronze, copper, and cast-iron wreathes are imported, and that the total amounts are not shown as coming from the principal countries in the list. This is due to the fact that imports are apt to be from the immediately adjoining countries for use on the graves of persons who have relatives near by.

BOLIVIA.

I. GENERAL DESCRIPTION OF MARKET.

Bolivia is an interior country, having no seaport, and securing all its supplies at the present time through Mollendo, Peru, or Arica or Antofagasta, Chile. From these points most of the imports must be hauled over the Andes—sometimes on rack railroads, sometimes over 500 or 600 miles of 30-inch gauge and steep grades, and sometimes with various transshipments, including a trip by boat across Lake Titicaca. Life in Bolivia is full of difficulties little thought of elsewhere, but the great mineral wealth of the country is slowly attracting capital and immigration.

The country forms only a very moderate market, and one that tends to give preference to merchandise of cheapest origin. As the majority of the consumers are from the lower classes and either have no regard for quality or can not afford to consider it, it is essential that all merchandise offered for sale be of the best possible appearance consistent with the lowest obtainable price. It is probable that the poorer classes buy 80 per cent of the total imports of the Republic, especially in tools and general hardware. Speaking broadly, buildings in Bolivia are old-fashioned. Economy is the general rule of life. There is no hardware manufacturing there.

Among the poorer classes there exist important differences arising from the various climatic and social conditions under which the inhabitants live. The northern people are said to be most progressive and hard-working—perhaps on account of the cold climate—and it is in the northern region that one finds the greatest demand for tools, as well as for many other articles. The majority of Bolivia's inhabitants are essentially agriculturists and miners, and in these branches of industry they use tools that are quite primitive. There is, however, a marked tendency to adopt improved methods, modern tools, and at times machinery, in spite of the conservative disposition of the average Bolivians. The latter, unless educated, are reluctant to change their methods. With the establishment of modern schools, however, they learn rapidly and become reasonably adept; this fact may contribute, in time, to make Bolivia a fair market for tools.

Until recently the market was almost wholly in the hands of the Germans, because of the facilities offered by them through their traveling salesmen. It is said that they often offered merchandise of English, French, Belgian, Italian, or American origin, probably because of their banking and forwarding facilities and familiarity with the local market. A considerable amount of business in lumber and corrugated iron is also handled from the United States in this way; that is, through foreign jobbing houses.

POSSIBILITIES OF MARKET—RAILWAY HARDWARE.

The possibilities of developing a fair market in Bolivia are good, but their realization depends largely on the willingness of the American manufacturers to give customary facilities on merchandise purchases. If these are not placed on a basis that will enable American exporters to compete against the Europeans—principally Germany and England—it will be uphill work to attempt to increase sales greatly. European manufacturers have demonstrated that they are ready to check any effort to compete against them. Some cases have occurred in which European houses, having knowledge of the fact that clients of theirs were about to establish relations with American firms, have made the customers such favorable offers that it has been possible to dissuade them from their proposed course. This, of course, is merely equivalent to a statement that those who now control the business will not give it up unless compelled to. There have been well-known cases in which European houses, in order to hold a client, have gone to the extreme of sending him merchandise on consignment, to be paid for when sold. There are some firms that will fill orders for any kind of merchandise, even of American manufacture, and sell it under the same terms and conditions that they have previously given their clients. It is said that merchandise sent from the United States sometimes bears a stamp indicating that it is made in some European country.

The hardware lines that have obtained the most extensive present demand are tools for carpenters, blacksmiths, and masons, and builders' hardware. In relation to the others, it may be said that mining and railway-construction hardware also enjoy a considerable sale and are developing into lines of importance. The railway hardware is almost wholly of European manufacture, because of the fact that the construction companies are English and French—one line only being actually constructed for the Government's account and under its administration. On the loan contract consummated between the Government of Bolivia and French capitalists for the amount of £1,000,000, to be expended in the construction of the La Quiaca-Tupiza Railroad, the capitalists made it one of the essential conditions of the loan that all the material necessary for the construction of the line should be bought in France. This clearly shows the help that European capitalists lend to their manufacturers, and indicates that they lose no opportunity to increase the exports from their respective countries to Bolivia.

The principal factors that tend to increase the importation of hardware into Bolivia are the construction of railways, the opening of new mines, the consequent concentration of laborers, and the implied necessity of housing them.

II. PRICES AND CONDITIONS OF PAYMENT.

The prices and the conditions of payment that the manufacturers may be able to grant to the merchants of this market will always be a factor of importance. Under equal conditions as regards price and quality, the Europeans have always possessed a great advantage in the granting of long-time credits, and in extending them when the merchants are unable to meet their obligations on due dates. In

order to facilitate such extensions the European houses who are well acquainted with their clients provide their bankers with such instructions that they may, in case of necessity, grant renewals of the obligations, on which the minimum rate of interest is 6 per cent. Many—perhaps the majority—of the European exporting firms leave the question of the granting of renewals to the judgment of their banking agents in the city where the collection is to be effected, since the latter are in a position to judge according to sounder standards the advisability of granting or refusing extensions of time. There are some very reputable firms who seldom pay on the first due date, invariably soliciting renewals and obtaining them without difficulty. They are, however, always charged a good rate of interest on the new period of time allowed, and it may be reasonably assumed that they comply with the obligation finally. Their request for renewal is undoubtedly due to the fact that local interest rates are higher than the rate paid for the renewal of their debt.

There are many first-class firms that import large quantities of merchandise of diverse kinds. The dispatching of these from the coast, the heavy disbursements that they are forced to make for the payment of extremely high freight rates, customs dispatching, shipment, loading and unloading, transshipments, duties, and commissions, increase the costs enormously. This should not, however, affect their payments on due dates nor force them to solicit renewals, even though such renewals be convenient to the seller as well as to them. It would seem that they should ask and receive longer terms in the first place or borrow from the banks to meet the bill. However, this is not a discussion of what a Bolivian merchant should do. The actual condition indicated is a serious difficulty for American manufacturers to overcome, and it is doubtful whether they will ever attempt to meet such an unfortunate condition directly. They will probably prefer to sell to large New York export houses and permit such institutions to make good profits in exchange for financing sales.

EUROPEAN VERSUS AMERICAN CREDIT FACILITIES.

Obviously the unusual credit facilities offered by European manufacturers have operated to the disadvantage of American factories. But, on the other hand, the quality of American products in the hardware line is such that a number of the more important importers are endeavoring to educate the consumers in distinguishing between the good and common quality, demonstrating to them the economy resulting from buying articles of the better grades on account of the greater durability and the better service rendered. This is an especially reasonable argument in a country where the first cost is often unimportant as compared with the final cost. It appears that some of these merchants are well satisfied with the results they are obtaining, and are consequently importing little other than American hardware. They have effected contracts or agreements with their agents in the United States by which they obtain credits and other facilities for shipping, paying in Bolivia. These arrangements, however, are of only temporary advantage to American manufacturers who seek the extension of their export business.

If it be true that the commission agents give facilities for payment on long time, they appear to do so at a great sacrifice to the Bolivian importer, since it is said that they reserve for themselves the greater part of the export discounts, besides collecting heavy commissions and interest, the former varying between 5 and 10 per cent and the latter between 6 and 12 per cent per year. It is evident that the elimination of export discounts granted by the factories increases the cost of the merchandise to a considerable extent. Added to the charges collected by certain commission houses for making consular invoices, for freight, insurance, cartage, petties, commissions, repacking, and other factors of which they may avail themselves to draw profits from shipments, this makes the final cost price for the merchant at destination from 25 to 60 per cent higher than it would be in case of direct sales. Many manufacturers suffer injury by this system.

The commission and jobbing houses in Bolivia are said at times to acquire the sole agency from some factory that produces articles in great demand, order these goods out for their own account, refuse to take orders for account of anyone else, and sell them in the Bolivian market at such high prices that the consumption is limited to a small part of what it should be. The writer is not prepared to vouch for the truth of this statement. He might add that he considers it strange, if true; and if it is really true he does not, at first thought, see a remedy, unless it be that the manufacturer should prepare himself to sell direct and assume the financial risk.

It is thought that the remarks made in a preceding chapter, on the methods of entering foreign markets, apply as forcibly to Bolivia as they do to Chile, with the possible exception that Bolivia is the smaller of the two markets and sales are more difficult to accomplish. All costs are higher, the market is not so well known, and the people of Bolivia will probably never consume as much per capita as do the people of Chile.

III. FACTORS AFFECTING AMERICAN SALES.

One of the most prejudicial facts working against American manufacturers is the lack of hardware samples in Bolivia. The writer has been able to find only two sets, neither of which is at all complete. Both are in the hands of commission houses with offices in the city of La Paz. These sets are never taken from their place and sent out with traveling salesmen as is done in the case of the European agents.

Against the method of doing business by traveling salesmen is their absolute dependence on other persons for credit information, as well as the municipal ordinances of the various cities, in each one of which commercial travelers are heavily taxed, to wit: La Paz, B/s 250 (\$100); Cochabamba, B/s 1,000 (\$400); Oruro, B/s 250 (\$100); Potosi, B/s 200 (\$80); Sucre, B/s 300 (\$120); Uyuni, B/s 250 (\$100); Santa Cruz de la Sierra, from B/s 400 to B/s 800 (\$160 to \$320); Tarija, B/s 200 (\$80); and Tupiza, B/s 200 (\$80). (B/s means bolivianos, the Bolivian unit of currency.) To these excessive municipal taxes must be added the heavy traveling expenses, the high freights, the long delays in the transportation of samples, and the personal expenses of the traveler, all of which make the trip to

Bolivia very costly. There are very few kinds of merchandise the sale of which would provide sufficient profit to pay the amount of the municipal taxes alone. It may here be noted that the municipal taxes collected by the various cities hold good for one year, within which period a traveler may come and go at his pleasure without being again molested. As the travelers pay such taxes as representatives of their principals and not as sellers of any special line of merchandise, they may bring a different line of goods every time they visit a city and not have to pay again.

This is a point of importance to those contemplating the establishment of an agency on the west coast of South America. The only traveling salesmen who annually cover the Bolivian territory without suffering a loss are those who come with the representation of 8 or 10 different products, the factories dividing the expenses. Some European houses have this service so well organized, and have made such efficient investigations regarding the kinds of merchandise best suited to be represented by one traveler in order to avoid undue expenses, that they have reduced the latter to a minimum. Such a traveler often leaves his home country with definite instructions as to the manner in which he is to make the trip, with a complete list of sure clients whom he must visit, and with everything so arranged that the expenses of the trip are practically insured before he starts. Other European houses follow the system of establishing a central agency at Lima, Valparaiso, or any other large coast city, such an agency sending out its travelers two or three times a year through the same territory, thus keeping themselves continuously before their clients and in close touch with the requirements of the local market. At times they make visits of mere courtesy, when the clients are fully stocked and have no other orders to give. These central agencies maintain a direct correspondence with all the local merchants known to them, and by carrying a stock of general merchandise in their resident town, or at a convenient port on the coast, they are able to fill any urgent want of their clients immediately upon receipt of the order. It is obvious that the availability of stocks is of the greatest advantage to their clients, especially when the only alternative of quick delivery might be the loss of the sale.

CORRECT WAY TO PREPARE INVOICES.

Another factor that works against the importation of American merchandise is the persistent practice of most American factories or firms of invoicing their merchandise in English, thus putting the Bolivian merchants to great inconvenience. The latter are forced to pay translators, who do not always do their work properly and who might, unwittingly of course, divulge details of the transactions, such as the costs and terms. It must be remembered that translating of this kind is not as easy as literary translating, since there are a great many trade words that only a person of considerable experience could understand.

The invoices should contain all the necessary information regarding net and gross weights, marks and numbers, with detailed packing lists giving the contents of each package and, in fact, all the data that may be of use to the client or consignee. There is no doubt whatever that the scrupulous observance of these details by certain

European houses has won for them the good will of the majority of the merchants of Bolivia, because the proper presentation of such information saves the buyer much work and avoids difficulties with the customhouse authorities. The metric system of weights and measures is the standard of Bolivia and should be employed.

INDEFINITE RETAIL PRICES.

One of the peculiarities of the foreign retail business not commonly followed in the United States is unusually accentuated in Bolivia. The prices placed on merchandise (and marked in code) before it is put on sale are not necessarily fixed. In fact, the salesman generally gives the client a higher price than that at which the merchandise is marked and tries to obtain all he can get. It is an established custom for the client to insist on a reduction, and he ordinarily buys the merchandise for a much lower price than that first asked, although in no case for less than the marked amount. The system of beating down prices is so firmly rooted among the Bolivian people that it is almost impossible to deal on a fixed basis.

TRADE IN MANUFACTURED IRON.

Exclusive of agricultural implements and manufactured iron, the total importation of hardware shown by the Bolivian records varies from \$100,000 to \$150,000 per year, of which the United States sells about 8 to 10 per cent. It is true that manufactured iron may include a considerable amount of hardware, but it is also certain that it includes high values of structural steel and galvanized iron. Of this material the United States sells the insignificant amount of 2 to 5 per cent, Germany leading by a great margin over all competitors. This is particularly remarkable when one remembers that so much of Bolivia's production finds its way to Great Britain and ultimately to the United States.

There is obviously something seriously wrong with American business practices as applied to the Bolivian trade in manufactures of iron, but the writer is not at present prepared to point out the detailed methods that must be followed to improve the conditions, since the present report is limited to a study of hardware markets. It is apparent, however, that an organization of American manufacturers should lose no time in securing the services of a competent man to study the situation and report in detail.

METHODS OF ENTERING MARKET.

Referring again to the exclusive subject of hardware, and noting the small available market, the idea of opening branch stores may be immediately abandoned.

As pointed out at length in a previous chapter, treating generally of the two countries but more especially of Chile, the results from correspondence alone will prove of exceedingly small value, though it must be carried on to a reasonable extent—preferably, by far, in Spanish, and with care in prepaying the postage. The method most advantageous to the manufacturer is that of appointing a direct representative or granting his agency to a firm or person making a spe-

cialty of direct representation of factories or producers. This possesses the advantage of avoiding other expenses to the manufacturer than those incurred in sending a complete line of samples and catalogues and in judicious advertising in local newspapers or through posters. This form of advertising can not be expected to bring great returns, but it has the advantage of reaching the reader regularly and seems to be a subject that deserves to be studied. Contracts can be effected with newspapers in the principal cities and the space used to advertise various articles; that is, copy can be changed practically as often as one desires.

Many foreign firms have advertised, indicating some address abroad to which interested persons might direct their inquiries. Although this method has a certain value, it would seem that better results might be obtained if the address of a local agent could be given. Other methods that can be used for advertising are posters and large painted signs on walls and bridges. This last method is being used more and more every year in Bolivia. The electric street cars also carry advertising, and their rates for space are quite moderate.

It must be borne in mind that once a brand is well known to the masses in Bolivia it becomes very difficult to induce them to change it for another. This is especially true of the Indian, who is extremely conservative. Continuous advertising, one need hardly say, tends to fix a name in the minds of the people.

Naturally the representative or agent would not get a commission unless he placed an order, and this fact might induce him to look with too much favor on a merchant considered as a commercial risk. One may note, incidentally, that it is said that occasionally New York agents secure a commission from the client as well as a part of the export discounts; it is not clear just how this is done, except by rebilling in New York. A direct representation of the kind suggested might eliminate certain profits of middlemen, since the agents would act as direct representatives of the factories. However, if the middleman is the credit guarantor nobody would desire to eliminate him. Doing business through the big export houses or commission agents that guarantee payment is obviously not going to be abandoned for any untried scheme involving the extension of long credits in a field so little known as Bolivia.

ADVANTAGES OF A RESIDENT AGENT.

It has been seen that traveling salesmen are expensive, and the only remaining method is by establishing a resident agent of some kind, either an American or one of the native houses. The establishment of a firm with the representation of several manufacturers would provide the following advantages to the latter: Their products would be placed on the market under the exact conditions prescribed by them without occasioning expenses for salaries. The annual expense for commercial taxes imposed by municipalities on agents, representatives, or travelers would be eliminated. The competition originating from concessions said to be made by commission houses to their favorite clients would also be avoided. The desirability of possessing an agent on the ground to keep watch and take advantage of all opportunities that may arise is readily apparent. If the agent is established in the country and has thorough knowledge of local

conditions and clients, great good would undoubtedly result. The knowledge and experience secured by the agent with regard to customs dispatching would also be an advantage, since he could provide both manufacturer and clients with reliable information concerning this difficult branch of business, as well as concerning the proper methods of making out the consular-invoice declarations and bills.

Such an agent might even go so far as to carry a stock of articles of common use and advertise these goods to a certain extent. One of the most effective methods of making sales in Bolivia is by means of samples so mounted as to make the exhibit attractive. Manufacturers well know that the sight of a good collection of samples often induces the buyer to place orders, and this is especially true in the countries under consideration, where clients are drawn invariably to the line that will attract the eye of the lower classes.

CATALOGUES AND QUOTATIONS.

The compilation of catalogues in *Spanish* is of the most vital importance. These must be complete, attractive, well-detailed, and easily understood. It must not be forgotten that in Bolivia the English-speaking persons are few, and fewer still those who possess complete knowledge regarding weights, qualities, and the peculiar terms used in various lines of hardware. All quotations must be made out with complete data regarding prices and discounts, including the cost of packing for export, and avoiding, whenever possible, subsequent corrections and charges not previously indicated. It often occurs that after the buyer has accepted a quotation, the invoice price, when the goods are shipped, is higher than that quoted, because unforeseen charges are added to it. These oversights always provoke claims and disputes that finally injure, if not altogether ruin, the chances for further business. The fact that prime costs have changed has absolutely nothing to do with the matter. Bolivia is a long way from the United States, and one must quote prices that will hold long enough to get the goods into the market.

IV. PACKING HARDWARE FOR BOLIVIA.

Many complaints arise relative to the bad packing of American merchandise, but, in justice, it must be acknowledged that during the last few years American manufacturers and shippers have given a great deal of attention to this branch of their business, with the result that they now pack their goods as well as those coming from Europe. The charges for this service, however, are considerably higher than those of European shippers.

The best way of packing general hardware is by the use of cases made of strong lumber $\frac{3}{4}$ or 1 inch in thickness, according to the weight of the contents. These cases should be well secured with metal straps, and clearly marked with the initials of the clients (or the marks ordered by them), the gross and net weight in *kilos*, and the dimensions of the case in *metric measurement*. Cases shipped from Europe are often stamped with hot stencils, which burn the marks into the wood, thus preventing their erasure. American manufacturers generally mark their cases with a brush, using marking

inks of various kinds that frequently rub off on the trip to Bolivia. The obliteration of the marks from the packages is one of the things that most frequently causes loss in transit.

TRANSSHIPMENT—WEIGHTS—DESIRABLE PRECAUTIONS.

It must be borne in mind that merchandise shipped to Bolivia must, perforce, be transshipped several times, and that in the transshipments it is subjected to the roughest kind of handling. Goods destined for the cities of La Paz, Oruro, Uyuni, and Potosi get through to their final destination by railways, often with several transfers, while those going to all other Bolivian cities must travel long distances on llama or mule back, which method of transportation occasions frequent handling in loading and unloading the animals when they are relieved for the night or have stopped to rest.

It is a general custom in placing orders to indicate the maximum weight that each case must contain—a direction that unfortunately is not always observed by the manufacturer or shippers, thus causing great trouble to the merchants at the destination. The instructions given by clients regarding the weights of packages must be adhered to strictly.

It is not unusual, in shipping fine hardware, to line the inside of the cases with zinc or some similar substance and to grease the individual pieces so that they may not rust. Rusting frequently occurs, on account of the humid atmosphere that the packages must come through in transit. Oiled cloth or oiled paper are sometimes used for the inside lining of the packages, in order to save expense, and these at times produce as good results as any other substance. The packing is a matter of great importance, to which manufacturers desirous of success must give their best attention, since lack of care in this respect has caused great losses to the merchants of Bolivia.

Packages shipped to merchants in Bolivian cities should not weigh more than 150 pounds, cases of such weight being easy to handle, with consequently less risk of damage to their contents. European shippers reinforce the corners of boxes with slats of the same thickness as the boards of the case, and this method has proved a very efficient protection. Great care must be taken to assure oneself that the contents of the cases are packed so tightly that there is no chance of their settling or becoming loose from handling.

V. CREDITS, RATINGS, AND COLLECTIONS.

Regarding the extension of credit it may be said that this point has been the principal cause of the preference given to European articles. American houses have always been very exacting in the matter of payments, while those in Europe have ordinarily been less so. Until a short time ago American houses would not grant a longer term than 60 days from delivery of shipping documents, which is really rather good terms, but it must be borne in mind that the shipments suffer long delays in their transit to Bolivia from the coast, and it will easily be understood why the merchants invariably had to pay the costs before receiving the goods. Of late some American firms have granted to a few firms terms of 90 days from delivery of shipping documents, but even this is not quite sufficient

to compete with the advantages that are offered by the majority of European houses. Many of the latter, it is true, work under the same conditions, but the greater number grant from 90 days to 6 months from delivery of shipping documents, while others grant from 60 to 180 days from the receipt of the goods.

Many other firms that are interested in the sale of special lines, or that have special interest in the sale of articles in certain markets, send consignments to well-known clients, paying them a good commission on the selling price or (what is more usual) fixing a minimum selling price and leaving the merchant free to sell as high as circumstances will permit. The system of consignments is very popular with merchants in Bolivia, because they are thus enabled to do business with another person's capital. It is necessary, however, to exercise great care, intrusting consignments to such firms as are very substantial—and then only after having made a careful study of the merchandise to be sent, its probabilities of sale, and the prices that it will cost in the place of final delivery. The investigations regarding the possibilities of sale must, of course, be conducted strictly from the point of view of the conditions prevailing in the market in which the goods are to be sold. Consignments sent have sometimes absolutely failed of sale. It is sincerely hoped that no American manufacturer will attempt to do business on the consignment basis.

To some houses enjoying good credit many European factories grant an account current, the purchasers paying the value of the merchandise through liquidations that in most cases are made every six months, though in others they are made yearly. This method is of great advantage to the buyers, who are given the opportunity, in effecting their payments, to avail themselves of the variations in exchange.

SOURCES OF CREDIT INFORMATION.

The steps taken to learn a merchant's rating consist chiefly of applying to the various banks for information concerning them, and this information is generally provided to established firms in a confidential way. The reports usually give a good idea of the standing of the person or firm inquired about, but in some instances they are divergent, one bank turning in a better report than the others. Regarding this subject the reader is referred to a previous chapter, on sources of credit information in Chile (beginning on p. 69). The general remarks there may be reasonably applied to Bolivia. An agent established in the latter country by the manufacturer could send a copy of the report obtained from the banks relative to the standing of the clients placing orders, and could supplement such information as the bank might have. This practice would probably place the manufacturer in a position to judge the clients and their probable responsibility himself, with the banks' assistance.

USUAL PRACTICE IN MAKING COLLECTIONS.

The most common method of making collections is by attaching the shipping documents to the drafts that are sent to some local bank, the documents being delivered upon the acceptance of the draft and the bank taking charge of the collection on due dates.

These drafts, as has already been noted, are often drawn at 60 or 90 days when they come from the United States, though European manufacturers extend their terms as long as 180 days, or more in some instances. The correspondence with the banks is directed to the main offices in La Paz, which distribute the collections among their corresponding branches in the various districts of the Republic. This carries the advantage for the shipper of dealing with only one office, even though shipment may be made to different districts. It is essential that the shipping documents be sent immediately after the shipment of the merchandise, the acceptance of the draft being necessary to enable the client in the capital to obtain the documents. It must be borne in mind that these have to be sent from Bolivia to the agent who attends to the dispatching and forwarding from the Chilean coast, in order that he may be able to obtain the merchandise and forward it to Bolivia without loss of time and consequent inconvenience to the merchants. Often the delays in dispatching cause the mislaying of packages and facilitate pilfering.

Many clients who have an account current with the Bolivian banks, and who possess sufficient capital to arrange for the banks to guarantee their orders, have the shipping documents sent by the shippers direct to the merchant's dispatching agent on the coast and the drafts sent to the bank with duplicate documents. This is undoubtedly the best method, but unfortunately all clients are not in a position to make such arrangements.

VI. GENERAL CONSIDERATIONS.

It is generally believed in Bolivia that the hardware manufactured in the United States is much superior to the European product. Therefore, if American manufactures seek to extend their sales in the Bolivian market they should experience little difficulty in so doing, provided they are prepared to give the same terms and conditions offered by European factories regarding payments, prices, and packing. The last two details can easily be met, but the credits have heretofore been too favorable to the merchant for the good of all concerned. To these problems must be added the willingness of the European manufacturers to adapt their products to the desire of the clients in the importing countries. Europeans will not only make changes in their products, but often do so without an additional charge beyond the prices submitted with their samples. This has been one of the greatest advantages offered and has frequently guided buyers in seeking foreign connections. In Europe it has been made possible by the low cost of hand labor as compared with similar charges in the United States.

The Bolivian market for American goods promises to develop to reasonable proportions, provided the American manufacturers take advantage of the existing opportunities to become acquainted with the trade. It is thought that the best method of studying this market, by those who are in a position to do so, would be to send an expert or resident agent, who would stay for some time in the principal cities to obtain complete information on the subject under consideration. His principal field of activity would probably be in La Paz and Oruro. He should avoid the common practice of many

travelers, who come to Bolivia, remain in one of the cities for two or three days, devoting most of their time to sight-seeing, and then return to the United States with reports that are principally based not on real facts, but on what the travelers have heard from chance acquaintances. Some of the latter may be well-intentioned, but others may be interested persons who would be troubled by the establishment of competition and therefore avail themselves of the opportunity to give misleading or incomplete information.

The system suggested, however, demands heavy disbursements for salary and traveling expenses, and there is grave doubt in the mind of the writer concerning the ability of such a person to cover the costs. It seems reasonable to suppose that these might be reduced by appointing an agent or representative who is established in the country and knows the market. Unfortunately the names and addresses of persons competent to act in this capacity and meriting the required confidence are not now available, but undoubtedly could be secured. Care must be taken that the appointment falls upon a person who is not overburdened with other agencies or representations, especially in a competing line. The desirability of naming those whose business is strictly that of a forwarding or commission agent is open to discussion. Regarding the part that can best be played by the export houses, the chapter on entering foreign markets (beginning on p. 38) may prove of interest.

WAYS IN WHICH GERMANS SECURED TRADE.

The great success of the Germans in the Bolivian market is thought to have been founded some time ago when they sent a committee of experts who studied the market even to the most insignificant lines, taking to Germany complete sets of samples of every article that it was possible to imitate and send. Perfect imitations—made in Germany—of “ponchos” and other Indian woven products are found in the stores, and the colors and designs are so well imitated that it is necessary to know the Indian product very well in order to distinguish it from the European article. To give an idea of how minutely careful the Germans are in this respect, reference may be made to the annual feast, called “Alacitas,” celebrated in La Paz on January 24, 25, and 26. It especially consists of the exhibition by the lower classes of all kinds of articles in miniature. It was originally very interesting, since everything offered was handmade, but during the last two or three years it has been of decreasing importance because the majority of the articles placed on sale were made in Europe. The quantities sold during this feast are insignificant, but this fact merely serves to accentuate the principle followed by the European manufacturers in developing the foreign commercial field.

VII. STATISTICS OF IMPORTS.

The relative importance of the hardware business in Bolivia would lead one to expect a fairly clear record of the imports of each class of articles, but unfortunately such a record is not available in the customhouses or the Statistical Office, except under the following headings: Aluminum ware; manufactured iron; tinware; agricultural tools; mining tools; workmen's tools. Each heading is taken as a

whole, without details of any kind regarding the various subdivisions that one might expect. Statistics of the classes mentioned are given in the table below, showing comparatively the imports entering Bolivia from all the various sources and giving the total weight and value of each class. Efforts were made to obtain the 1914 figures, but without success, since records are generally delayed about two years. Those for the years 1912 and 1913, however, give a good idea of normal conditions, it being common knowledge that the imports for 1914 were considerably less than those of preceding years. The principal reason for the inability to obtain such detailed statistics as are kept in the United States lies in the fact that, since all tools for arts and trades are admitted free of duty and nearly all hardware for other uses pays a uniform rate of duty (that is, 25 per cent ad valorem), the customs declarations are usually made out only under the headings mentioned.

The countries of origin are arranged, in the following table, in the order of their relative importance, as determined by the quantities imported during 1912. All values are in United States currency:

Countries.	1912		1913	
	Pounds.	Value.	Pounds.	Value.
WORKINGMEN'S TOOLS.				
Germany.....	261,996	\$39,431	350,128	\$48,048
Belgium.....	84,231	6,421	61,006	9,012
Great Britain.....	76,127	9,237	165,640	18,908
United States.....	38,775	4,678	58,764	9,317
Chile.....	28,387	2,736	58,434	7,372
France.....	27,201	4,723	35,237	5,638
Brazil.....	13,847	2,128	4,682	457
Argentina.....	10,397	2,804	9,249	1,815
Spain.....	5,161	660	843	145
Peru.....	2,028	302	4,118	1,070
Italy.....	1,483	273	370	42
Uruguay.....	70	71		
Switzerland.....			1,176	182
Total.....	549,703	73,464	749,647	102,006
MINING TOOLS.				
Germany.....	91,313	7,396	322,399	19,138
Belgium.....	31,451	1,155	13,440	1,040
Chile.....	28,252	1,846	90,618	5,420
Great Britain.....	18,839	1,773	208,320	13,841
France.....	13,499	1,292	68,504	4,286
Argentina.....	3,753	418	5,612	858
United States.....	2,941	434	65,613	4,154
Peru.....	545	24	4,616	412
Brazil.....	37	39		
Total.....	190,630	14,377	779,122	53,149
TINWARE.				
Germany.....	18,546	4,205	32,338	4,399
United States.....	1,694	566	2,460	701
Italy.....	1,505	478	35	8
Great Britain.....	1,168	229	7,526	1,013
Brazil.....	902	192	70	20
Chile.....	656	140	803	225
Argentina.....	315	73	5,960	692
France.....	194	47	1,267	213
Spain.....	123	30	1,194	42
Belgium.....	64	14	1,747	263
Peru.....	59	5	2,684	210
Uruguay.....	48	4		
Portugal.....	9	2		
Japan.....			185	50
Total.....	25,283	5,985	55,269	7,836

Countries.	1912		1913	
	Pounds.	Value.	Pounds.	Value.
ALUMINUM WARE.				
Germany.....	2,627	\$1,140	6,334	\$3,147
Chile.....	1,499	217	1	2
Brazil.....	378	171	42	28
Great Britain.....	136	71	423	177
Italy.....	123	42	59	72
France.....	121	55	35	20
United States.....	29	41	211	92
Belgium.....	15	6	191	172
Spain.....	2	3	13	19
Peru.....	2	3	7	3
Argentina.....			948	377
Total.....	4,932	1,749	8,264	4,109
AGRICULTURAL IMPLEMENTS.				
Germany.....	211,057	15,903	276,168	26,690
Great Britain.....	139,542	11,558	251,014	20,386
United States.....	45,382	4,659	97,321	13,591
Brazil.....	35,539	3,729	26,479	3,203
Chile.....	19,999	1,318	33,495	5,707
Belgium.....	19,323	2,014	24,310	3,764
Argentina.....	14,109	1,174	34,588	2,746
Peru.....	2,990	273	9,874	731
France.....	2,895	282	22,365	3,323
Total.....	490,736	40,910	775,614	80,141
MANUFACTURED IRON.				
Germany.....	15,907,464	916,360	35,380,268	1,889,033
Belgium.....	8,063,783	341,812	11,906,294	344,437
Great Britain.....	5,577,671	258,268	9,122,775	468,576
United States.....	5,477,406	252,518	1,326,989	80,658
Chile.....	4,348,509	147,291	5,692,746	312,298
Peru.....	2,397,657	65,923	709,878	34,215
Argentina.....	402,868	71,966	393,052	66,080
Brazil.....	323,044	26,802	182,321	16,445
France.....	237,989	17,028	1,330,734	74,738
Uruguay.....	26,422	1,337	6,505	1,929
Italy.....	17,292	4,197	18,225	954
Spain.....	7,007	856	4,081	274
Portugal.....	220	8	205	14
Total.....	42,687,332	2,106,366	66,074,073	3,289,601

It may occur to dealers that agricultural machinery and manufactures of iron should not properly be included in a list of hardware imports. They are shown, however, to enable the reader to estimate the amount of supplies that might be needed in a country where the statistics are obviously incomplete.

The tables presented indicate that Chile and the United States sell about equal amounts of tools to Bolivia. This is misleading, since those sold by Chile are undoubtedly imported from other countries. The same is true of other articles, sold not only by Chile but also by Argentina, Brazil, and Peru. Therefore, in estimating the whole South American market one would err in including all these second sales, or importations to Bolivia from adjoining countries.

It should be remembered that practically all merchandise entering or leaving Bolivia goes through Chilean ports and that the most successful Bolivian houses have established connections along the Pacific coast. It is thought by the writer that any American interests who hope to increase their business in Bolivia would do well to handle their affairs through a representative at whatever port conditions may indicate as most advantageous, leaving the details of the Bolivian market to agents reporting to that representative.

CONCLUSION.

It may be interesting to note that since August, 1914, the retail prices in Bolivia have been increased between 10 and 25 per cent on all hardware imported from Europe, and a shortage in many lines is becoming noticeable (this report was submitted November 15, 1915). Catalogues and price lists are to be had from local agents or representatives only on condition that they be returned as soon as orders have been made up. These agents will not lend their catalogues nor give details to persons other than established merchants.

Before closing, it may be stated that one of the most necessary requirements for the proper development of American business throughout Bolivia is the establishment of a banking institution to facilitate the financing of orders. This is a point that Europeans realized long ago, and certain banks financed on the Continent have offices in the principal business centers, affording great facilities to the commerce of their respective nations and incidentally returning very good profits to their shareholders.¹

¹ In this connection the reader should consult the monograph on "Banking Opportunities in South America," by William H. Lough, issued by the Bureau of Foreign and Domestic Commerce as Special Agents Series No. 106 and obtainable for 20 cents from the district or cooperative offices of the Bureau, or from the Superintendent of Documents, Government Printing Office, Washington, D. C.

APPENDIX.

A. CATALOGUES AND OTHER PUBLICATIONS.

In connection with the foregoing report, a very considerable number of catalogues was secured by the attaché, it being his purpose to include those of the more important European manufacturers who supply hardware to the Chilean and Bolivian markets. A list of these catalogues is given below. They are arranged by the nationality of the house and in alphabetical order according to the surname of the principal member of the firm. The address is given in each instance, as well as the character of the business, the articles described in the publications, the languages in which they are printed, and (wherever this appears) the date of issuance. If statements of discounts are included, the fact is indicated in the list.

ENGLISH FIRMS.

Bayliss, Jones & Bayliss, 139 Cannon Street, London, E. C., England. Manufacturers. Bolts and nuts. Catalogue printed in English.

Bradley & Craven (Ltd.), Wakefield, England. Manufacturers. Steam-power brick and pipe and tile making machinery, steam engines, etc. Catalogue printed in English.

British Manufacturers' Hardware Circular. Miscellaneous. Printed in English.

W. B. Brown & Co. (Ltd.), Liverpool, England. Manufacturers. Ropes. Catalogue printed in English.

E. M. Dickinson (Ltd.), Sheffield, England. Manufacturer. Electroplate and silverware. Catalogue printed in English. Includes statement of discounts.

Easterbrook, Allcard & Co. (Ltd.), Sheffield, England. Manufacturers. Engineers' tools. Catalogue printed in English. Includes statement of discounts.

William Edwards & Sons, Oldbury, near Birmingham, England. Manufacturers. Edge tools. Catalogue printed in Spanish and English. Issued in 1912. Includes statement of discounts.

Francis Greaves & Sons, Sheffield, England. Manufacturers. Cutlery, electroplate, cased goods, etc. Catalogue printed in English, French, German, and Spanish. Includes statement of discounts.

Holt & Willetts, Lion Works, Cradley Heath, England. Manufacturers. Two catalogues—one of elevators, cranes, power hoists, pulley blocks, etc.; the other of jacks, pressure pumps, and wheel presses. Both catalogues printed in English. Include statements of discounts.

Samuel Osborn & Co. (Ltd.), Sheffield, England. Manufacturers. Files. Catalogue printed in English.

Rabone Bros. & Co., Birmingham, England. Manufacturers and representatives of other makers. Six catalogues, as follows: Knives, Rabone make (in Spanish); tinned and enameled ware, Rabone make (in English, French, German, and Spanish), issued in 1913; spoons and forks, two catalogues (in English); nickel-silver and electroplated tableware (in English); mining and contractors' tools, made by Hardy Patent Pick Co., of Sheffield (in English).

C. T. Skelton & Co., Sheffield, England. Manufacturers. Agricultural tools. Catalogue printed in English. Issued in 1896.

Spear & Jackson, Sheffield, England. Manufacturers. Saws, files, edge tools, machine knives, etc. Catalogue printed in English. Issued in 1896.

John Yates & Co. (Ltd.), Birmingham, England. Manufacturers. Edge tools. Catalogue printed in Spanish. Issued in 1902.

FRENCH FIRMS.

Bost Frères, Laissey, Doubs, France. Manufacturers. Two catalogues, both of tools and both in French. One issued in 1911, the other undated. Include statements of discounts.

Dumas, Feune de Colombi & Cie., Paris, France. Manufacturers. Three catalogues, as follows: Padlocks (in German, English, Spanish, and French); brushes (in German, French, and English); sadirons (in German, English, Spanish, French, and Russian). Include statements of discounts.

Hutchinson, Paris, France. Manufacturer. India-rubbergoods. Catalogue printed in French.

Le Jay Fils, Charleville, Ardennes, France. Manufacturers. Three catalogues, as follows: Nails, issued in 1908; carriage hardware; miscellaneous hardware. All in French.

A. H. Moreau Fils, 31 Rue du Petit Musc, Paris, France. Manufacturers. Locks and hardware. Catalogue printed in French. Issued in 1910.

Les Fils de J. Perille, Paris, France. Manufacturers. Corkscrews, nutcrackers, hat hooks, fine hardware of various sorts. Catalogue printed in French.

Peugeot Frères, Valentigney, Doubs, France. Manufacturers. Miscellaneous hardware. Catalogue, 1904; catalogue and discounts, 1910; catalogue, 1911. All in French.

Sculfort & Fockede, Maubeuge, France. Manufacturers. Machinery, edge tools, vices, axles. Catalogue printed in French. Issued in 1912.

Société Française de Munitions, Paris, France. Manufacturers. Cartridges. Catalogue printed in French. Issued in 1910. Includes statement of discounts.

Stremier & Loiseau, 74 Boulevard Richard, Paris, France. Manufacturers. Locks, and hardware for furniture, buildings, and upholstery. Two catalogues, both in French. One issued in 1908, the other in 1910.

Vachette Frères & Leurs Fils, 60 Rue de Charonne, Paris, France. Manufacturers. Hardware and locks for furniture and buildings. Catalogue printed in French. Issued in 1909.

Ch. Vermot, 30 Rue Rennequin, Paris, France. Manufacturer. Spring axles, fore carriages, ironwork, hardware, bolts, etc. Catalogue printed in French. Issued in 1910.

GERMAN FIRMS.

Bergmann, Berlin, Germany. Manufacturer. Electrical machinery. Catalogue printed in French. Issued in 1910.

V. Borries & Co., Hamburg, Germany. Exporters. Tools. Catalogue printed in German. Includes statement of discounts.

Gerson, Reifenberg & Co., Hamburg, Germany. Exporters. Three catalogues, as follows: Hinges, door fixtures, miscellaneous. Catalogues printed in German. Include statements of discounts.

Goldenberg, Zornhoff, Alsace, Germany. Manufacturers. Tools. Catalogue printed in German, French, and English. Includes statement of discounts.

C. G. Kotte, Luttringhausen, Germany. Manufacturer and export agent. Thirteen catalogues, covering the following articles: Tools and builders' hardware (in Spanish); padlocks, three catalogues (one in Spanish, two in German, English, Spanish, and French); measuring instruments of all kinds (in German); buckles (in German, French, English, Spanish, and Portuguese); brushes, two catalogues (one in German and French, one in German, English, French, and Spanish); metal stencils (in Spanish, English, French, and German); locks, catalogue issued in 1912 (in German, English, French, and Spanish); locks for furniture (in Spanish); planes, catalogue issued in 1908 (in German); furniture fittings (in German). Include certain statements of discounts.

Mutzig-Framont, Mutzig, Alsace, Germany. Manufacturers. Two catalogues—one of coffee mills, the other of tools. Both catalogues printed in German and French.

Hugo Nocken, Velbert, Rheinland, Germany. Manufacturer. Padlocks. Catalogue printed in German, English, French, and Spanish.

Peter Ludwig Schmidt, Elberfeld, Germany. Manufacturer. Tools, cutlery, skates, hardware. One catalogue in English, issued in 1911; another in Spanish. Include statements of discounts.

Gebrüder Schwabenland, Mannheim, Germany. Manufacturers. Enamel ware. Catalogue printed in German, English, French, Italian, Spanish, and Portuguese.

Leopold Unger & Co., Hamburg, Germany. Exporters. Miscellaneous hardware. Catalogue printed in German, English, French, and Spanish. Also a catalogue of scales and balances, in Spanish only. Include statements of discounts.

ITALIAN FIRM.

Pirelli & Cia., Milan, Italy. Manufacturers. Miscellaneous hardware. Prospectus printed in Spanish. Issued in 1910.

VARIOUS.

Ten catalogues, of varying character, with name of manufacturer or agent not given. These were secured by Attaché Havens from Chilean merchants. The subjects covered are as follows: Locks, including padlocks (in Spanish and English); pruning shears (in French); enameled, decorated, and sanitary goods (in English and Spanish); cooking and household utensils and enameled ware (in German, French, and English); tools (in German); tea sets, coffee service, spirit cookers, washbasins, hand lanterns, cans, etc. (in German, French, English, and Spanish); enameled hollow ware (in English, German, French, and Spanish); window hardware (in German); decorated enameled hollow ware (in German, French, English, and Spanish); aluminum cooking utensils (in German, French, English, and Spanish).

Book of invoices of a Santiago, Chile, hardware firm. In Spanish.

Book of price lists. In Spanish.

In addition to the catalogues of hardware manufacturers and dealers, Commercial Attaché Havens submitted with this report a number of publications that he considered would be of interest as elucidating various points to which he has referred. These do not relate specifically to hardware, but rather to such general conditions as railroad rates, port regulations, and movements looking toward an improvement in building construction. It is felt that these will afford an insight into certain aspects of Chilean life and economic activity that affect, at least in part, the market for any given line:

Puerto de San Antonio. Tarifas i reglamento para embarque i desembarque de mercaderías. Enero de 1914. (Tariffs and regulations for the loading and unloading of merchandise at the port of San Antonio, Chile. January, 1914.) In Spanish.

Ferrocarriles del Estado. Prescripciones para la aplicación de las tarifas i reglamentos para el trasporte de la carga (primera edición). (Chilean State Railways. Enactments governing the application of the tariffs and regulations for the transportation of freight.¹ First edition.) In Spanish.

Same. Transporte de pasajeros (transportation of passengers). In Spanish.

Same. Transporte de equipajes (transportation of baggage). In Spanish.

Prospecto de la Sociedad Nacional de Construcciones. (Prospectus of the National Building Society.) In Spanish. Three publications with this title, all different.

Consejo Superior de Habitaciones Obreras. Memoria de su Labor. (Superior Council of Workmen's Dwellings. Memoire of its work.) 1913. In Spanish.

Same. 1911-12.

Indice de los contratistas inscritos en los registros de la dirección jeneral de obras públicas. (Index of the contractors entered in the registers of the General Office of Public Works.) 1913. In Spanish.

All the catalogues and other publications to which reference has been made above may be inspected now at the New York district office of the Bureau of Foreign and Domestic Commerce, Room 409, United States Customhouse, and they will be sent subsequently to the other district and cooperative offices for examination by all interested persons. The file number is 948.

B. LIST OF SAMPLES.

In connection with the hardware investigation of which this report represents a part, a great number of samples was collected from all parts of the world that are covered by the United States commercial attaché service. These samples were carefully selected from goods

¹ It should be noted, in connection with this publication, that the freight rates have been altered recently and that the new publication containing them will probably become available soon.

commonly in use and enjoying the favor of buyers in the various countries. They are, so far as possible, characteristic of the popular taste and directly indicative of the special requirements of the markets. They show what foreign manufacturers have been doing in each field. Their purchase by the attachés was designed to give to American exporters a thoroughly practical demonstration of the kind of goods most likely to meet with the approval of the purchasers abroad.

The samples sent to the United States by all the attachés have been arranged in the form of a comprehensive exhibition in connection with the New York district office of the Bureau of Foreign and Domestic Commerce (United States Customhouse), and they are open to inspection by all interested persons. They will subsequently be sent to the Bureau's other offices throughout the country.

The list that follows shows the samples collected in Chile and Bolivia. The term "cost price" (noted wherever such information has been obtainable) means the net cost at the factory. By "selling price" is meant what the writer of the report paid for the articles as purchased over the counter. It should be understood that this latter price might vary considerably, since the changing rates of exchange produce altered prices in the same store, these being determined by the period at which the consignment of goods has been received.

CHILE.

1. Level, 15 centimeters;¹ German; cost price, \$0.047 each; selling price, \$0.15.
2. Same,² 18 centimeters; cost price, \$0.054 each; selling price, \$0.18.
3. Same, 20 centimeters; cost price, \$0.061 each; selling price, \$0.22.
4. Level, 20 centimeters; German; cost price, \$0.081 each; selling price, \$0.26.
5. Same, 25 centimeters; cost price, \$0.095 each; selling price, \$0.29.
6. Same, 30 centimeters; cost price, \$0.11 each; selling price, \$0.33.
7. Level, 15 centimeters; German; cost price, \$0.059 each; selling price, \$0.27.
8. Same, 20 centimeters; cost price, \$0.071 each; selling price, \$0.29.
9. Same, 25 centimeters; cost price, \$0.078 each; selling price, \$0.33.
10. Same, 30 centimeters; cost price, \$0.09 each; selling price, \$0.36½.
11. Level, 22 centimeters; German; cost price, \$2.36 per dozen; selling price, \$0.36½ each.
12. Level, 25 centimeters; German; cost price, \$1.96 per dozen; selling price, \$0.51 each.
13. Same, 30 centimeters; cost price, \$2.19 per dozen; selling price, \$0.58 each.
14. Level, 15 centimeters; German; cost price, \$2.82 per dozen; selling price, \$0.36½ each.
15. Same, 20 centimeters; cost price, \$2.98 per dozen; selling price, \$0.44 each.
16. Same, 25 centimeters; cost price, \$3.13 per dozen; selling price, \$0.51 each.
17. Same, 30 centimeters; cost price, \$3.29 per dozen; selling price, \$0.55 each.
18. Level, 40 centimeters; German; cost price, \$1.85 per dozen; selling price, \$0.46 each.
19. Same, 45 centimeters; cost price, \$1.90 per dozen; selling price, \$0.47 each.
20. Same, 50 centimeters; cost price, \$1.94 per dozen; selling price, \$0.49 each.
21. Same, 60 centimeters; cost price, \$2.12 per dozen; selling price, \$0.55 each.
22. Level, "Constantia," 40 centimeters; German; cost price, \$2.76 per dozen; selling price, \$0.53 each.
23. Same, 45 centimeters; cost price, \$2.84 per dozen; selling price, \$0.55 each.
24. Same, 50 centimeters; cost price, \$2.94 per dozen; selling price, \$0.58 each.

¹ Equivalents of metric units: Meter=3.28 feet; centimeter=0.39 inch; millimeter=0.039 inch; liter=1.06 liquid quarts; kilo=2.2 pounds; gram=0.035 ounce.

² Editor's Note.—Wherever, in the original manuscript list of samples, the data indicated that an article differs from the preceding one in design, quality, or country of origin, the name of the article has been given specifically in this published list. Where the word "same" occurs, it is to be understood either (1) that the sample is identical with the preceding one except as regards size, or (2) that the data furnished with the report fail to show whether this is true or not.

25. Same, 60 centimeters; cost price, \$3.25 per dozen; selling price, \$0.84 each.
26. Same, 70 centimeters; cost price, \$3.40 per dozen; selling price, \$1.02 each.
27. Level, 15 centimeters; German; cost price, \$1.34 per dozen; selling price, \$0.37 each.
28. Same, 20 centimeters; cost price, \$1.65 per dozen; selling price, \$0.47 each.
29. Same, 25 centimeters; cost price, \$2.04 per dozen; selling price, \$0.66 each.
30. Level, 20 centimeters; German; cost price, \$5.49 per dozen; selling price, \$0.73 each.
31. Level, brass, 10 centimeters; German; cost price, \$2.20 per dozen; selling price, \$0.40 each.
32. Same, 13 centimeters; cost price, \$2.59 per dozen; selling price, \$0.47 each.
33. Same, 15 centimeters; cost price, \$2.98 per dozen; selling price, \$0.57 each.
34. Same, 17 centimeters; cost price, \$3.37 per dozen; selling price, \$0.58 each.
35. Same, 20 centimeters; cost price, \$3.66 per dozen; selling price, \$0.66 each.
36. Level, 10 centimeters; German; cost price, \$1.57 per dozen; selling price, \$0.36½ each.
37. Level, 20 centimeters; German; cost price, \$0.53 each; selling price, \$1.40.
38. Same, 25 centimeters; cost price, \$0.55 each; selling price, \$1.46.
39. Same, 30 centimeters; cost price, \$0.65 each; selling price, \$1.64.
40. Level, 30 centimeters; German; cost price, \$15.70 per dozen; selling price, \$2.92 each.
41. Level, 30 centimeters; German; cost price, \$12.57 per dozen; selling price, \$2.74 each.
42. Double meter; German; cost price, \$13.49 per gross; selling price, \$0.26 each.
43. Double meter; German; cost price, \$6.50 per gross; selling price, \$0.18 each.
44. Double meter; German; cost price, \$9.74 per gross; selling price, \$0.18 each.
45. Double meter; German; cost price, \$12.55 per gross; selling price, \$0.18 each.
46. Double meter, white; German; cost price, \$15.99 per gross; selling price, \$0.18 each.
47. Double meter, yellow; German; cost price, \$14.50 per gross; selling price, \$0.18 each.
48. Double meter; German; cost price, \$3.38 per gross; selling price, \$0.09 each.
49. Double meter; German; selling price, \$0.09 each.
50. Ordinary meter; German; selling price, \$0.07 each.
51. Ordinary meter; German; selling price, \$0.09 each.
52. Brass meter; German; cost price, \$0.75 per dozen; selling price, \$0.18 each.
53. Steel meter; German; cost price, \$1.72 per dozen; selling price, \$0.26 each.
54. Tape measure, 5 meters; German; cost price, \$4.02 per dozen; selling price, \$0.66 each.
55. Same, 25 meters; cost price, \$10.02 per dozen; selling price, \$1.46 each.
56. Same, 15 meters; cost price, \$6.86 per dozen; selling price, \$1.10 each.
57. Plummet; German; cost price, \$0.33 per dozen; selling price, \$0.11 each.
58. Plummet; German; selling price, \$0.22 each.
59. Plummet; German; selling price, \$0.11 each.
60. Plummet; made in Chile.
61. Square, 120 by 180 millimeters; German; cost price, \$0.323 each; selling price, \$0.73.
62. Same, 100 by 150 millimeters; cost price, \$0.28½ each; selling price, \$0.66.
63. Chisel, 50 millimeters; French; cost price, \$0.266 each; selling price, \$0.73.
64. Same, 45 millimeters; cost price, \$0.21½ each; selling price, \$0.64.
65. Same, 30 millimeters; cost price, \$0.132 each; selling price, \$0.36½.
66. Same, 25 millimeters; cost price, \$0.12 each.
67. Same, 20 millimeters; cost price, \$0.11 each; selling price, \$0.29.
68. Same, 15 millimeters; cost price, \$0.104 each; selling price, \$0.26.
69. Same, 12 millimeters; cost price, \$0.098 each; selling price, \$0.24.
70. Beveled chisel, 40 millimeters; French; cost price, \$0.274 each; selling price, \$0.51.
71. Same, 25 millimeters; cost price, \$0.158 each; selling price, \$0.37.
72. Same, 15 millimeters; cost price, \$0.11 each; selling price, \$0.29.
73. Firmer gouge, 30 millimeters; French; selling price, \$0.36½ each.
74. Same, 25 millimeters; cost price, \$0.215 each; selling price, \$0.33.
75. Same, 20 millimeters; cost price, \$0.179 each; selling price, \$0.29.
76. Chisel, 30 millimeters; French; cost price, \$0.23 each; selling price, \$0.36½.
77. Same, 25 millimeters; cost price, \$0.18 each; selling price, \$0.33.
78. Same, 20 millimeters; cost price, \$0.14 each; selling price, \$0.29.
79. Mortise socket chisel, 20 millimeters; French; cost price, \$0.42 each; selling price, \$0.66.
80. Same, 15 millimeters; cost price, \$0.36 each; selling price, \$0.58.

81. Same, 12 millimeters; cost price, \$0.30 each; selling price, \$0.55.
82. Same, 10 millimeters; cost price, \$0.27 each; selling price, \$0.49.
83. Same, 6 millimeters; cost price, \$0.20 each; selling price, \$0.36½.
84. Gouge chisel, 20 millimeters; French; cost price, \$0.12 each; selling price, \$0.66.
85. Same, 15 millimeters; cost price, \$0.10½ each; selling price, \$0.58.
86. Same, 40 millimeters, cost price, \$1.37 per dozen; selling price, \$0.22 each.
87. "Mano" chisel, 10 millimeters; French; cost price, \$0.07 each; selling price, \$0.20.
88. Same, 20 millimeters; cost price, \$0.09 each; selling price, \$0.29.
89. Same, 25 millimeters; cost price, \$0.10 each; selling price, \$0.33.
90. Compass, 25 centimeters; French; cost price, \$0.128 each; selling price, \$0.33.
91. Same, 22 centimeters; cost price, \$0.109 each; selling price, \$0.29.
92. Same, 19 centimeters; cost price, \$0.10 each; selling price, \$0.26.
93. Same, 16 centimeters; cost price, \$0.089 each; selling price, \$0.22.
94. Same, 13 centimeters; cost price, \$0.082 each; selling price, \$0.18.
95. One-fourth circle compass, 25 centimeters; French; cost price, \$0.222 each; selling price, \$0.22.
96. Same, 19 centimeters; cost price, \$0.163 each; selling price, \$0.40.
97. Same, 16 centimeters; cost price, \$0.163 each; selling price, \$0.36½.
98. Caliper, 19 centimeters; French; cost price, \$0.163 each; selling price, \$0.33.
99. Same, 16 centimeters; cost price, \$0.145 each; selling price, \$0.29.
100. Same, 13 centimeters; cost price, \$0.127 each; selling price, \$0.26.
101. Same, 16 centimeters; French; cost price, \$0.111 each; selling price, \$0.36½.
102. Same, 19 centimeters; cost price, \$0.127 each; selling price, \$0.44.
103. Wood screw, 20 millimeters; French; cost price, \$0.80 each; selling price, \$1.28.
104. Sheep shears, 30 centimeters; French; cost price, \$0.67½ each, with 38 to 41 per cent discount; selling price, \$0.91.
105. Ax, 6 pounds; Swedish; cost price, \$5.84 per dozen; selling price, \$1.64 each.
106. Ax, 5½ pounds; German; cost price, \$5.68 per dozen; selling price, \$1.64 each.
107. Mountain ax, 5 pounds; German; cost price, \$5.27 per dozen; selling price, \$1.55 each.
108. Hinge, 4 inches, German; selling price, \$0.04 each.
109. Same, 3 inches; selling price, \$0.04 each.
110. Same, 2½ inches; selling price, \$0.04 each.
111. Double-edged saw; French; cost price, \$2.63 per dozen; selling price, \$0.55 each.
112. Pruning saw; French; cost price, \$2.37 per dozen; selling price, \$0.22 each.
113. Compass saw; French; cost price, \$17.42 per 100; selling price, \$0.29 each.
114. Sculptor's beveled chisel, 2 millimeters; French; cost price, \$0.123 each with handle; \$0.11 without handle.
115. Same, 4 millimeters; cost price, \$0.128 each with handle; \$0.15 without handle.
116. Same, 8 millimeters; cost price, \$0.136 each with handle; \$0.16 without handle.
117. Same, 12 millimeters; cost price, \$0.143 each with handle; \$0.18 without handle.
118. Same, 15 millimeters; cost price, \$0.148 each with handle, \$0.22 without handle.
119. Same, 20 millimeters; cost price, \$0.158 each with handle, \$0.26 without handle.
120. Sculptor's chisel, not beveled, 2 millimeters; French; cost price, \$0.058 each; selling price, \$0.11.
121. Same, 4 millimeters; cost price, \$0.063 each; selling price, \$0.13.
122. Same, 6 millimeters; cost price, \$0.067 each; selling price, \$0.13.
123. Same, 8 millimeters; cost price, \$0.071 each; selling price, \$0.15.
124. Same, 10 millimeters; cost price, \$0.073 each; selling price, \$0.16.
125. Same, 12 millimeters; cost price, \$0.078 each; selling price, \$0.18.
126. Same, 15 millimeters; cost price, \$0.083 each; selling price, \$0.20.
127. Same, 20 millimeters; cost price, \$0.093 each; selling price, \$0.24.
128. Double iron for plane, "Mono," 50 millimeters; French; cost price, \$22.97 per 100; selling price, \$0.66 each.
129. Double iron for plane, "Leon," 46 millimeters; French; cost price, \$22.97 per 100; selling price, \$0.69 each.
130. Single iron for plane, 50 millimeters; German; cost price, \$0.10½ each; selling price, \$0.36½.
131. Single iron for plane, "Leon," 46 millimeters; French; cost price, \$23.57 per 100; selling price, \$0.36½ each.
132. Panel plough, iron, 15 millimeters; French; cost price, \$0.09 each; selling price, \$0.15.
133. Rabbet plane, iron, 26 millimeters; German; cost price, \$0.05 each; selling price, \$0.15.
134. Fair bead plane, irons, 16 millimeters; German; cost price, \$0.18 each; selling price, \$0.11.
135. Horseshoeing hammer; selling price, \$0.33 each.

136. Tack hammer, 10-millimeter head; German; cost price, \$2.67 per dozen; selling price, \$0.45 each.
137. Shoemaker's hammer; French; selling price, \$0.33 each.
138. Wood scraper, German; cost price, \$0.04 each; selling price, \$0.07.
139. Tablespoon; German; selling price, \$0.29 each.
140. Dessert spoon; German; selling price, \$0.26 each.
141. Tablespoon; cost price, \$1.58 per dozen; selling price, \$0.29 each.
142. Dessert spoon; cost price, \$1.22 per dozen; selling price, \$0.26 each.
143. Coffee spoon; cost price, \$0.57 per dozen; selling price, \$0.15 each.
144. Coffee spoon; German; cost price, \$0.57 per dozen; selling price, \$0.18 each.
145. Table fork; German; cost price, \$1.58 per dozen; selling price, \$0.29 each.
146. Dessert fork; German; cost price, \$1.22 per dozen; selling price, \$0.22 each.
147. Table fork; English; selling price, \$0.55 each.
148. Dessert fork; English; selling price, \$0.22 each.
149. Drawknife with handles; German; cost price, \$0.17 each; selling price, \$0.55.
150. Front door lock; French; cost price, \$1.63 each; selling price, \$3.65.
151. Front door lock; French; cost price, \$2.08 each; selling price, \$3.65.
152. Door lock; French; selling price, \$3.65 each.
153. Door lock, short key; French; cost price, \$2.61 each; selling price, \$3.65.
154. Door lock; French; cost price, \$0.43 to \$0.46 each; selling price, \$1.10.
155. Door lock; French; cost price, \$0.27 each; selling price, \$0.73; brass knobs, cost price, \$5.98 per 100.
156. "Bec de canne" (duck's beak) lock; French; cost price, \$1.24 each; selling price, \$2.19.
157. Ordinary "bec de canne" lock, no key; French; cost price, \$0.15 each, without handle; selling price, \$0.55.
158. Sliding door bolts; French; cost price, \$50.25 per 100; selling price, \$1.46 each.
159. Same; French; cost price, \$0.15 each, with iron; selling price, \$0.55.
160. Same; German; cost price, \$0.17 each, with iron; selling price, \$0.37.
161. Door bolt, 40 centimeters; French; cost price, \$0.16 each; selling price, \$0.73.
162. Same; 32 centimeters; cost price, \$8.20 per 100; selling price, \$0.18 each.
163. Same, 25 centimeters; cost price, \$8.15 per 100; selling price, \$0.18 each.
164. Sunk flush bolt, 25 centimeters; French; cost price, \$0.18 each; selling price, \$0.26.
165. Door spring; selling price, \$0.57 each.
166. Shutter bolt, iron, 60 millimeters; French; cost price, \$3.86 per 100; selling price, \$0.29 each.
167. Shutter bolt, brass, 47 millimeters; French; cost price, \$0.26 each; selling price, \$0.36½.
168. Shutter bolt, iron, 35 millimeters; French; cost price, \$0.116 each; selling price, \$0.15.
169. Shutter bolt, iron, 27 millimeters; French; cost price, \$0.104 each; selling price, \$0.11.
170. Shutter bolt, iron, 35 millimeters; French; cost price, \$0.047 each; selling price, \$0.07.
171. Shutter bolt, brass; French; selling price, \$0.22 each.
172. Shutter bolt, nickel plated; French; selling price, \$0.33 each.
173. Shutter bolt, iron; French; selling price, \$0.36½ each.
174. Shutter bolt, nickel plated; French; selling price, \$0.44 each.
175. Shutter bolt, brass; French; selling price, \$0.36½ each.
176. Paintbrush; German; cost price, \$0.59 per dozen; selling price, \$0.11 each.
177. Same; cost price, \$0.70 per dozen; selling price, \$0.11 each.
178. Same; cost price, \$0.98 per dozen; selling price, \$0.11 each.
179. Same; cost price, \$1.35 per dozen; selling price, \$0.15 each.
180. Same; cost price, \$2.09 per dozen; selling price, \$0.22 each.
181. Same; cost price, \$2.87 per dozen; selling price, \$0.33 each.
182. Same; cost price, \$3.94 per dozen; selling price, \$0.40 each.
183. Same; cost price, \$5.25 per dozen; selling price, \$0.55 each.
184. Same; cost price, \$6.40 per dozen; selling price, \$0.69 each.
185. Same; cost price, \$9.19 per dozen; selling price, \$0.84 each.
186. One set of round paintbrushes; German; selling price, \$1.28 each.
187. One set of flat paintbrushes; German; selling price, \$0.91 each.
188. Set of four brushes, black bristles; German; selling price, \$0.91 each.
189. Wooden chair seat; German; cost price, \$1.17 per dozen; selling price, \$2.74.
190. Bronzed iron knocker; French; cost price, \$0.07 each; selling price, \$0.22.
191. Door chain; selling price, \$0.29 each.
192. Three window-blind latches, brass; French; selling price, \$0.36½ each.
193. Two window-blind latches, iron; French; selling price, \$0.55 each.
194. Small latch; German; French; selling price, \$0.04 each.

195. Gate or shutter hook-and-eye; French; selling price, \$0.02 each.
196. Paumelle, "Picardie," French; selling price, \$0.55 each.
197. Nickel-plated door pull; French; selling price, \$1.83 each.
198. Brass door pull; French; cost price, \$0.85 each; selling price, \$2.37.
199. Nickel-plated door pull; French; cost price, \$0.93 each; selling price, \$2.37.
200. Brass door knob; French; cost price, \$0.25 each; selling price, \$1.02.
201. Padlock; German; cost price, \$2.37 per dozen; selling price, \$1.10 each.
202. Same; cost price, \$1.18 per dozen; selling price, \$0.95 each.
203. Same; cost price, \$1.04 per dozen; selling price, \$0.55 each.
204. Same, 45 millimeters; cost price, \$0.26 per dozen; selling price, \$0.11 each.
205. Same, 55 millimeters; cost price, \$0.37 per dozen; selling price, \$0.15 each.
206. Galvanized padlock; German; cost price, \$1.79 per dozen; selling price, \$0.44 each.
207. Padlock, with one key; German; cost price, \$1.42 per dozen; selling price, \$0.18 each.
208. Padlock, 60 millimeters; German; selling price, \$0.15 each.
209. Padlock, double-bitted key; German; cost price, \$1.29 per dozen; selling price, \$0.36½ each.
210. Brass padlock; selling price, \$0.70 each.
211. Victoria padlock, 55 millimeters, one key; cost price, \$1.17 per dozen; selling price, \$0.40 each.
212. Iron padlock; German; cost price, \$0.32 per dozen; selling price, \$0.20 each.
213. Hoe, 4 pounds; English; cost price, \$3.81 per dozen; selling price, \$0.55 each.
214. "Carolina" hoe; English; cost price, \$2.36 per dozen; selling price, \$0.33 each.
215. Three garden picks; German; selling price, \$1.31 each.
216. Garden spade; German; cost price, \$0.44 each; selling price, \$0.91.
217. Shovel; English; selling price, \$0.73 each.
218. Billhook; English; selling price, \$1.10 each.
219. Same; Chilean; cost price, \$0.50 each; selling price, \$0.73.
220. Hoe; English; cost price, \$2.41 per dozen; selling price, \$1.02 each.
221. Machete, 10½-inch; English; cost price, \$2.91 per dozen; selling price, \$1.46 each.
222. Set of 23 locks; German; selling price, \$7.23 each.
223. Set of 22 furniture locks; German; selling price, \$3.83 each.
224. Set of 13 locks; German; selling price, \$4.56 each.
225. Sickle; English; cost price, \$0.60 per dozen; selling price, \$0.18 each.
226. Pipe tongs; German; cost price, \$0.355 each; selling price, \$0.73.
227. Pipe cutter; German; cost price, \$1.59 each; selling price, \$1.83.
228. Chain pipe tongs; German; cost price, \$0.90 each; selling price, \$1.83.
229. Gas pliers; German; selling price, \$1.10 each.
230. Combination pliers; German; cost price, \$6.81 per dozen; selling price, \$0.73 each.
231. Barbers' scissors; German; selling price, \$1.08 each.
- Same; selling price, \$1.26 each.
- Same; selling price, \$1.26 each.
- Same; selling price, \$1.08 each.
- Same; selling price, \$0.96 each.
- Finger-nail scissors, curved; German; selling price, \$0.78 each.
- Same; selling price, \$1.20 each.
- Same; selling price, \$1.05 each.
- Finger-nail scissors, straight; German; selling price, \$0.75 each.
- Same; selling price, \$0.45 each.
- Same; selling price, \$0.60 each.
- Pocket scissors; German; selling price, \$1.05 each.
- Same; selling price, \$0.90 each.
- Same; selling price, \$0.75 each.
- Seamstresses scissors; German; selling price, \$0.96 each.
- Same; selling price, \$0.78 each.
- Same; selling price, \$0.66 each.
- Same; selling price, \$0.60 each.
- Same; selling price, \$0.75 each.
- Same; selling price, \$0.60 each.
- Same; selling price, \$0.45 each.
232. Penknife; German; selling price, \$0.60 each.
- Same; selling price, \$1.20 each.
- Same; selling price, \$1.35 each.
- Same; selling price, \$1.50 each.
- Same; selling price, \$1.50 each.
- Same; selling price, \$2.25 each.
- Same; selling price, \$3.30 each.

232. Razor; German; selling price, \$1.50 each.
 Same; selling price, \$1.50 each.
 Razor, German; selling price, \$1.80 each.
 Razor, safety, 6 blades; selling price, \$1.05 each.
 Razor, safety, 12 blades; selling price, \$1.80 each.
 Shaving brush; German; selling price, \$0.75 each.
 Same; selling price, \$0.45 each.
 Same; selling price, \$0.92 each.
233. Strop; German; selling price, \$1.35 each.
 Same; selling price, \$1.80 each.
 Hone; German; selling price, \$0.75 each.
 Same; selling price, \$0.90 each.
234. Twist drill for ratchet brace, $\frac{1}{4}$ -inch; German; cost price, \$2.95 per dozen; selling price, \$0.40 each.
235. Same, $\frac{3}{8}$ -inch; cost price, \$2.23 per dozen; selling price, \$0.35 each.
236. Spoon bit, $\frac{3}{8}$ -inch; German; cost price, \$4.42 per gross; selling price, \$0.16 each.
237. Swiss bit, open nose, $\frac{1}{2}$ -inch; German; cost price, \$2.84 per gross; selling price, \$0.10 each.
238. Screw bit, square nose, 1-inch, 7 inches long; German; cost price, \$1 per dozen; selling price, \$0.45 each.
239. Swiss brace bit, $\frac{3}{8}$ -inch; German; cost price, \$3.37 per gross; selling price, \$0.09 each.
240. Center bit, $1\frac{1}{4}$ -inch; German; cost price, \$0.365 per dozen; selling price, \$0.16 each.
241. Pincers, 16-centimeter; German; cost price, \$0.193 each; selling price, \$0.24.
242. Same, 19-centimeter; cost price, \$0.23 each; selling price, \$0.35.
243. Same, 22-centimeter; cost price, \$0.27 each; selling price, \$0.48.
244. Same, 28-centimeter; cost price, \$0.32 each; selling price, \$0.65.
245. Pincers, farrier's; German; cost price, \$0.579 each; selling price, \$1.50.
246. Padlock; cost price, \$0.48 per dozen; selling price, \$0.18 each.
247. Same; cost price, \$1.10 per dozen; selling price, \$0.36 $\frac{1}{2}$ each.
248. Same; selling price, \$0.25 $\frac{1}{2}$ each.
249. Same; cost price, \$2.34 per dozen; selling price, \$0.36 $\frac{1}{2}$ each.
250. Same; cost price, \$1.19 per dozen; selling price, \$0.33 each.
251. Same; cost price, \$0.53 per dozen; selling price, \$0.22 each.
252. Same; cost price, \$0.77 per dozen; selling price, \$0.25 $\frac{1}{2}$ each.
253. Three knives; French; selling price, \$1.31 for the three.
254. Furniture lock; German; selling price, \$0.22 each.
255. Furniture lock, nickel plated; German; selling price, \$0.47 each.
256. Furniture lock; German; selling price, \$0.07 each.
257. "Revollier" scythe; French; selling price, \$0.95 each.
258. Post-hole shovel; English; selling price, \$1.46 each.
259. Emery wheel; selling price, \$0.62 each.
260. Shoemaker's hammer; French; selling price, \$0.33 each.
261. Sledge; selling price, \$0.69 each.
262. Two mason's hatchets; Chilean; cost price, \$0.20 each; selling price, \$0.69.
263. Plane.
264. Plane.
265. Six tinsmiths' hammers; German; selling price, \$5.98 for set.
266. Square, 12-inch; German; selling price, \$0.44 each.
267. Ratchet brace, 16-inch; German; selling price, \$3.21 each.
268. Round knife; selling price, \$0.91 each.
269. Pincer, 16-centimeter; French; cost price, \$0.46 each; selling price, \$0.55.
270. Pincer, 15-centimeter, square; French; selling price \$0.51 each.
271. Same, round; selling price, \$0.51 each.
272. Pincer, 12-centimeter; French; cost price, \$0.164 each; selling price, \$0.24.
273. Same, 14-centimeter; cost price, \$0.231 each; selling price, \$0.27.
274. Pincer, 13-centimeter; French; cost price, \$0.231 each; selling price, \$0.33.
275. Same, 16-centimeter; cost price, \$0.27 each; selling price, \$0.40.
276. Nipper, 4-inch; French; selling price, \$0.33 each.
277. Pipe pincer, 11-millimeter; selling price, \$1.09 $\frac{1}{2}$ each.
278. Shoeing pincer; selling price, \$1.17 each.
279. Screw driver; cost price, \$0.22 each; selling price, \$0.27.
280. Screw driver; selling price, \$0.15 each.
281. Combination wrench; German; selling price, \$1.97 each.
282. Two wood rasps, 12-inch; German; selling price, \$0.91 each.
283. Shoemaker's rasp; German; selling price, \$0.25 $\frac{1}{2}$ each.

284. Pruning shears, 26½-centimeter; selling price, \$0.80 each.
285. Set of garden tools; English; cost price, \$2.87 each; selling price, \$4.56.
286. Hand balance; German; cost price, \$1.47 per dozen; selling price, \$0.55 each.
287. Hand balance; German; cost price, \$0.61 per dozen; selling price, \$0.36½ each.
288. Nickel-plated monkey wrench; German; selling price, \$0.40 each.
289. "Simplex" monkey wrench; German; selling price, \$1.09½ each.
290. Shovel, without handle, "Mono"; English; selling price, \$0.95 each.
291. Blank keys; German; selling price, \$0.29 each.
292. Forked hoe; German; cost price, \$0.50 each; selling price, \$0.98½.
293. Two flat "Dreadnought" rasps, 12-inch; selling price, \$1.09½ each.
294. Six spring washers; selling price, \$0.07 each.
295. Five hooks, various types; selling price, \$0.45 each.
296. Carpenter's saw; English; cost price, \$12.30 per dozen; selling price, \$2.10 each.
297. Handsaw; cost price, \$5.17 per dozen; selling price, \$0.91 each.
298. Meat saw; German; selling price, \$1.33 each.
299. Pruning saw; English; cost price, \$3.04 per dozen; selling price, \$0.84 each.
300. Bucksaw, open handle; cost price, \$4.55 per dozen; selling price, \$0.54 each.
301. Farrier's hammer; English; selling price, \$0.63½ each.
302. Ax; selling price, \$1.27 each.
303. Pipe pliers; selling price, \$0.76 each.
304. Same; selling price, \$0.24 each.
305. Stocks and dies; selling price, \$2.66 each.
306. Machete; selling price, \$2.28½ each.
307. Pruning shears; French; selling price, \$0.57 each.
308. Hair clippers; French; selling price, \$2.12 each.
309. Same; French; selling price, \$1.52 each.
310. Horse clippers; French; selling price, \$1.14 each.
311. Razor; selling price, \$1.33 each.
312. Padlock, imitation Fitchett; selling price, \$1.51 each.
313. Seven blank keys; selling price, \$0.36½ each.
314. Five hooks; selling price, \$0.81 each.
315. Large harness hook and small harness hook; selling price, \$1.60 for both.
316. Awning various; selling price, \$2.47½ each.
317. Nails, various sizes; selling price, \$0.03 each.
318. Iron "aldabón" (trunk handle); Chilean; cost price, \$0.12 each; selling price \$0.19.
319. Brass "aldabón"; Chilean; cost price, \$0.60 each; selling price, \$0.76.
320. Flatiron; English; cost price, \$6.23 per 100 kilos; selling price, \$0.29 each.
321. Flatiron; English; cost price, \$6.23 per 100 kilos; selling price, \$0.31 each.
322. Flatiron; English; cost price, \$6.23 per 100 kilos; selling price, \$0.34 each.
323. Frying pan, 32 centimeters; French; selling price, \$0.53 each.
324. Same, 26 centimeters; French; selling price, \$0.34 each.
325. Flatiron; cost price, \$0.39 each; selling price, \$0.79 each.
326. Flatiron; cost price, \$0.35 each; selling price, \$0.73 each.
327. Alcohol iron; cost price, \$1.14 each; selling price, \$2.28 each.
328. Children's iron; selling price, \$0.11 each.
329. Coffee mill; German; selling price, \$0.76 each.
330. Rat trap; Chilean; selling price, \$0.79 each.
331. Mousetrap; American; selling price, \$0.20 each.
332. Fireplace set; selling price, \$1.27 each.
333. Bridle bit; selling price, \$0.31 each.
334. Same; selling price, \$0.38 each.
335. Bridle bit, for carriage; selling price, \$1.90½ each.
336. Same; selling price, \$1.52 each.
337. Bridle bit; selling price, \$0.95 each.
338. Same; selling price \$0.76 each.
339. Pair of spurs; selling price, \$0.92 each.
340. Same; selling price, \$1.52 each.
341. Same; selling price, \$0.46 each.
342. Same; selling price, \$0.57 each.
343. Same; selling price, \$0.46 each.
344. Pair of stirrups; selling price, \$1.14 each.
345. Varnished hames; selling price, \$1.52 each.
346. Part-brass hames; selling price, \$3.62 each.
347. All-brass hames; selling price, \$4.57 each.
348. Whip; selling price, \$0.76 each.
349. Same; selling price, \$0.76 each.

- 350. Whip; selling price, \$0.57 each.
- 351. Same; selling price, \$0.83 each.
- 352. Same; selling price, \$0.92 each.
- 353. Same; selling price, \$2.66 each.
- 354. Same; selling price, \$0.92 each.
- 355. Same; selling price, \$1.52 each.
- 356. Currycomb; selling price, \$0.41 each.
- 357. Same; selling price, \$0.41 each.
- 358. Same; selling price, \$0.46 each.
- 359. Same; selling price, \$0.38 each.
- 360. Same; selling price, \$0.31 each.
- 361. Chain; selling price, \$0.27 each.
- 362. Whiffletree irons; selling price, \$17.45 each.
- 363. Tongue point with yoke rings; selling price, \$2.10 each.
- 364. Same; selling price, \$2.28½ each.
- 365. Shaft point; selling price, \$0.46 each.
- 366. Same; selling price \$0.87 each.
- 367. Same; selling price, \$1.11 each.
- 368. Shaft butt; selling price, \$0.19 each.
- 369. Tin mouse trap; selling price, \$0.15 each.
- 370. Wooden mouse trap; selling price \$0.15 each.
- 371. Sample card of harness trimmings; selling price, \$2.06 each.
- 372. Chains, various sizes; selling price, \$1.59 each.

MILITARY HARDWARE.

- 373. Regulation saddle; cost price, \$17 each.
- 374. Leather saddle canteen; cost price, \$6 each.
- 375. Canvas saddlebags; cost price, \$1.60.
- 376. Leather surcingle; cost price, \$1.30 each.
- 377. Hemp surcingle; cost price, \$0.70 each.
- 378. Mexican cincha and rawhide strap; cost price, \$0.70 and \$0.12, respectively.
- 379. Pair of stirrup leathers; cost price, \$1.20 per pair.
- 380. Three saddle straps; cost price, \$0.50.
- 381. Pair of stirrups, with lance-bearing leather sockets; cost price, \$0.90 for sockets only.
- 382. Lance strap; cost price, \$0.70 each.
- 383. Saber hanger; cost price, \$0.80 each.
- 384. Color-bearer's leather socket; cost price, \$0.70 per pair.
- 385. Pair of spurs; cost price, \$0.70 per pair.
- 386. Dinner-pail carrier, leather.
- 387. Web halter, leather throat, latch chain, chin strap, cost price, \$1.80.
- 388. Rawhide hitching strap; cost price, \$0.20 each.
- 389. Halter bridle, ring bit, leather curb strap; cost price, \$2.40.
- 390. Military breastplate or martingale; cost price, \$0.80 each.
- 391. Halter bridle with chain fastened ring bit; cost price, \$1.20 and \$1.
- 392. Bridle strap; cost price, \$1 each.
- 393. Port bit with chain curb; cost price, \$1 and \$0.20.
- 394. Reins for port bit; cost price, \$0.80.
- 395. Canvas feed bag; cost price, \$0.80 each.
- 396. Leather-backed horse brush; cost price, \$0.90.
- 397. Currycomb with leather sleeve; cost price, \$0.20 each.
- 398. Aluminum dinner pail; cost price, \$0.80 each.
- 399. Aluminum drinking vessel; cost price, \$0.20 each.
- 400. Water canteen; cost price, \$0.70 each.
- 401. Tin pan; cost price, \$0.20 each.
- 402. Knife, fork, and spoon; cost price, \$0.04, \$0.03, and \$0.03.
- 403. Helmet for officer; cost price, \$2.40 each.
- 404. Trooper's helmet; cost price, \$2.20 each.
- 405. Helmet for cavalryman; cost price, \$2.20 each.
- 406. Three spools of thread (white, black, and khaki) and one package of needles; cost price, \$0.024, \$0.026, \$0.04, and \$0.01.
- 407. Large nickel-plated button for belt support; cost price, \$0.03 each.
- 408. Large brass button for belt support; cost price, \$0.026 each.
- 409. Nickel-plated coat button; cost price, \$0.015 each.
- 410. Nickel-plated sleeve or vest button; cost price, \$0.01 each.
- 411. Large brass coat button; cost price, \$0.01 each.
- 412. Small brass vest button; cost price, \$0.006 each.

MARINE HARDWARE.

413. Chain, $\frac{3}{4}$ -inch; English; selling price, \$0.40.
 414. Iron shackle; English; selling price, \$0.45 each.
 415. Lantern; English; selling price, \$6 each.
 416. Galvanized-iron shackle; English; selling price, \$0.10 each.
 417. Galvanized-iron oarlock; English; selling price, \$0.50 each.
 418. Round galvanized-iron rope guard; English; selling price, \$0.08 each.
 419. Life preserver; Chilean; selling price, \$2.40 each.
 420. Piece of cable; English.
 421. Boat hook; English.
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422. Light, shallow, bellied stewpan, 12 centimeters; selling price, \$0.47 each.
 423. Same, 14 centimeters; selling price, \$0.53 $\frac{1}{2}$ each.
 424. Same, 16 centimeters; selling price, \$0.63 each.
 425. Same, 18 centimeters; selling price, \$0.76 each.
 426. Same, 20 centimeters; selling price, \$0.91 each.
 427. Same, 22 centimeters; selling price, \$1.10 each.
 428. Same, 24 centimeters; selling price, \$1.23 each.
 429. Same, 26 centimeters; selling price, \$1.59 each.
 430. Light, shallow, bellied, saucepan, 14 centimeters; selling price, \$0.57 each.
 431. Same, 16 centimeters; selling price, \$0.73 each.
 432. Same, 18 centimeters; selling price, \$0.89 each.
 433. Same, 20 centimeters; selling price, \$1.10 each.
 434. Same, 22 centimeters; selling price, \$1.35 each.
 435. Same, 26 centimeters; selling price, \$1.95 each.
 436. Same, 30 centimeters; selling price, \$2.84 each.
 437. Asparagus kettle, 16 centimeters, damaged; selling price, \$1.62 each.
 438. Same, 20 centimeters, damaged; selling price, \$2.27 each.
 439. Same, 22 centimeters, damaged; selling price, \$2.89 each.
 440. Flat-bottomed teakettle, 14 centimeters; selling price, \$0.78 each.
 441. Same, 16 centimeters; selling price, \$0.91 each.
 442. Same, 18 centimeters; selling price, \$1.10 each.
 443. Same, 20 centimeters; selling price, \$1.28 each.
 444. Same, 24 centimeters; selling price, \$1.75 each.
 445. Same, 28 centimeters; selling price, \$2.35 each.
 446. Coffee-pot, capacity 2 cups; selling price, \$0.94 each.
 447. Same, 4 cups; selling price, \$1.12 each.
 448. Same, 6 cups; selling price, \$1.38 each.
 449. Same, 8 cups; selling price, \$1.61 each.
 450. Same, 10 cups; selling price, \$1.83 each.
 451. Same, 12 cups; selling price, \$2.03 each.
 452. Milk boiler, 1 $\frac{1}{2}$ liters; selling price, \$0.97 each.
 453. Same, 2 liters; selling price, \$1.10 each.
 454. Same, 2 $\frac{1}{2}$ liters; selling price, \$1.26 $\frac{1}{2}$ each.
 455. Same, 3 liters; selling price, \$1.54 each.
 456. Same, 5 liters; selling price, \$2.35 each.
 457. Frying pan with handle, 16 centimeters; selling price, \$0.39 each.
 458. Same, 18 centimeters; selling price, \$0.44 each.
 459. Same, 20 centimeters; selling price, \$0.53 $\frac{1}{2}$ each.
 460. Same, 22 centimeters; selling price, \$0.58 each.
 461. Same, 24 centimeters; selling price, \$0.63 each.
 462. Same, 26 centimeters; selling price, \$0.78 each.
 463. Same, 30 centimeters; selling price, \$0.79 $\frac{1}{2}$ each.
 464. Two-handled, light, frying pan, 10 centimeters; selling price, \$0.19 each.
 465. Same, 12 centimeters; selling price, \$0.19 $\frac{1}{2}$ each.
 466. Same, 14 centimeters; selling price, \$0.22 each.
 467. Same, 16 centimeters; selling price, \$0.24 each.
 468. Same, 18 centimeters; selling price, \$0.28 each.
 469. Same, 20 centimeters; selling price, \$0.32 each.
 470. Same, 24 centimeters; selling price, \$0.41 each.
 471. Square baking pan, 28 centimeters; selling price, \$1.01 each.
 472. Same, 42 centimeters; selling price, \$1.38 each.
 473. Same, 48 centimeters; selling price, \$1.78 each.
 474. Oval fish dish, 24 centimeters; selling price, \$0.52 each.
 475. Same, 28 centimeters; selling price, \$0.63 each.

476. Same, 32 centimeters; selling price, \$0.73 each.
477. Same, 36 centimeters; selling price, \$1.05 each.
478. Fish kettles, 35 centimeters; selling price, \$2.58 each.
479. Same, 40 centimeters; selling price, \$2.59½ each.
480. Same, 45 centimeters; selling price, \$3.00 each.
481. Straight ladle, 8½ centimeters; selling price, \$0.21 each.
482. Basting spoon, 8½ centimeters; selling price, \$0.21 each.
483. Ladle, 8 centimeters; selling price, \$0.15 each.
484. Same, 10 centimeters; selling price, \$0.22 each.
485. Same, 12 centimeters; selling price, \$0.26 each.
486. Skimmer, 10 centimeters; selling price, \$0.23 each.
487. Same, 12 centimeters; selling price, \$0.26 each.
488. Same, 14 centimeters; selling price, \$0.29 each.
489. Fish slice, 11½ centimeters; selling price, \$0.41 each.
490. Dustpan, 20 centimeters; selling price, \$0.57 each.
491. Funnel, 8 centimeters; selling price, \$0.23 each.
492. Same, 10 centimeters; selling price, \$0.28 each.
493. Same, 12 centimeters; selling price, \$0.32 each.
494. Same, 14 centimeters; selling price, \$0.41 each.
495. Soup bowl, with foot, 10 centimeters; selling price, \$0.24 each.
496. Same, 12 centimeters; selling price, \$0.31 each.
497. Same, 14 centimeters; selling price, \$0.41 each.
498. Soup bowl, without foot, 16 centimeters; selling price, \$0.42 each.
499. Same, 18 centimeters; selling price, \$0.54 each.
500. Gridiron, 7 centimeters; selling price, \$1.10 each.
501. Same, 8 centimeters; selling price, \$1.22 each.
502. Same, 9 centimeters; selling price, \$1.38 each.
503. Same, 10 centimeters; selling price, \$1.54 each.
504. Jug, without cover, 8 centimeters; selling price, \$0.37 each.
505. Same, 9 centimeters; selling price, \$0.41 each.
506. Same, 10 centimeters; selling price, \$0.47 each.
507. Jug, with cover, ½ liter; selling price, \$0.57 each.
508. Same, 1 liter; selling price, \$0.70 each.
509. Same, 1½ liters; selling price, \$0.78 each.
510. Same, 2 liters; selling price, \$0.88 each.
511. Same, 2½ liters; selling price, \$1.05 each.
512. Beer jug, ½ liter; selling price, \$0.55 each.
513. Same, 1 liter; selling price, \$0.73 each.
514. Same, 1½ liters; selling price, \$0.79½ each.
515. Same, 2 liters; selling price, \$1.02 each.
516. Same, 2½ liters; selling price, \$1.10 each.
517. Same, 3 liters; selling price, \$1.30 each.
518. Teapot, ½ liter; selling price, \$0.53½ each.
519. Same, 1 liter; selling price, \$0.63 each.
520. Same, 1½ liters; selling price, \$0.78 each.
521. Same, 2 liters; selling price, \$0.91 each.
522. Sugar bowl, 11 centimeters; selling price, \$0.63 each.
523. Same, 14 centimeters; selling price, \$0.81 each.
524. Milk pitcher, ¾ liter; selling price, \$0.75 each.
525. Same, 1 liter; selling price, \$1.07 each.
526. Strainer, 16 centimeters; selling price, \$0.58 each.
527. Same, 18 centimeters; selling price, \$0.68 each.
528. Same, 20 centimeters; selling price, \$0.78 each.
529. Colander, 22 centimeters; selling price, \$1.05 each.
530. Same, 24 centimeters; selling price, \$1.20 each.
531. One-half liter measure; selling price, \$0.65 each.
532. One liter measure; selling price, \$0.84 each.
533. Milk can, with padlock, 1 liter; selling price, \$0.76 each.
534. Same, 2 liters; selling price, \$1.23 each.
535. Same, 3 liters; selling price, \$1.61 each.
536. Same, 5 liters; selling price, \$2.56 each.
537. Same, 10 liters; selling price, \$3 each.
538. Double boiler, ½ liter; selling price, \$0.79½ each.
539. Same, 1 liter; selling price, \$1 each.
540. Same, 2 liters; selling price, \$1.52½ each.
541. Same, 3½ liters; selling price, \$1.86 each.
542. Same, 5 liters; selling price, \$2.51 each.

- 543. Round dish, 20 centimeters; selling price, \$0.44 each.
- 544. Same, 24 centimeters; selling price, \$0.54 each.
- 545. Milk can, 28 centimeters; selling price, \$0.70 each.
- 546. Same, 32 centimeters; selling price, \$0.84 each.
- 547. Grater, 14 centimeters; selling price, \$0.32 each.
- 548. Straight pot, 20 centimeters; selling price, \$1.44 each.
- 549. Same, 22 centimeters; selling price, \$1.86½ each.
- 550. Same, 24 centimeters; selling price, \$2.19 each.
- 551. Same, 30 centimeters; selling price, \$3.49 each.
- 552. Same, 34 centimeters; selling price, \$4.62 each.
- 553. Straight pot, with handle, 14 centimeters; selling price, \$1.09 each.
- 554. Same, 16 centimeters; selling price, \$1.27 each.
- 555. Same, 18 centimeters; selling price, \$1.43 each.
- 556. Same, 20 centimeters; selling price, \$1.57 each.
- 557. Same, 22 centimeters; selling price, \$1.83 each.
- 558. Same, 26 centimeters; selling price, \$2.51 each.
- 559. Same, 30 centimeters; selling price, \$3.80½ each.
- 560. Light, straight stewpan, 14 centimeters; selling price, \$0.63 each.
- 561. Same, 16 centimeters; selling price, \$0.76 each.
- 562. Same, 18 centimeters; selling price, \$0.97 each.
- 563. Same, 20 centimeters; selling price, \$1.22 each.
- 564. Same, 22 centimeters; selling price, \$1.46 each.
- 565. Same, 26 centimeters; selling price, \$1.86½ each.
- 566. Same, 30 centimeters; selling price, \$2.10 each.
- 567. Set of pans (five); selling price, \$3.65 each.
- 568. Pair kettles ("bonbache"), 1 liter; selling price, \$0.91 each.
- 569. Same, 2 liters; selling price, \$1.17 each.
- 570. Same, 3 liters; selling price, \$1.44½ each.
- 571. Same, 5 liters; selling price, \$1.91 each.
- 572. Same, 8 liters; selling price, \$2.74 each.
- 573. Same, 12 liters; selling price, \$3.54 each.
- 574. Round bowls; selling price, \$0.78 each.
- 575. Same, selling price, \$0.91 each.
- 576. Wire strainer, 10 centimeters; selling price, \$0.55 each.
- 577. Same, 12 centimeters; selling price, \$0.62 each.
- 578. Same, 14 centimeters; selling price, \$0.70 each.
- 579. Same, 16 centimeters; selling price, \$0.76 each.
- 580. Same, 18 centimeters; selling price, \$0.84 each.
- 581. Platter, with handles, 34 centimeters; selling price, \$1.59 each.
- 582. Same, 36 centimeters; selling price, \$1.77 each.
- 583. Same, 40 centimeters; selling price, \$2.20 each.
- 584. Same, 44 centimeters; selling price, \$3 each.
- 585. Same, 50 centimeters; selling price, \$3.40 each.
- 586. Ladle hanger; selling price, \$2.25½ each.
- 587. Same, 41 centimeters; selling price, \$2.92 each.
- 588. Same, 45 centimeters; selling price, \$3.24 each.
- 589. Aluminum pan, 26 centimeters; selling price, \$4.37 each.
- 590. Same, 22 centimeters; selling price, \$3.40 each.
- 591. Same, 20 centimeters; selling price, \$2.27 each.
- 592. Same, 16 centimeters; selling price, \$1.54 each.
- 593. Aluminum pot, 26 centimeters; selling price, \$3.16 each.
- 594. Same, 22 centimeters; selling price, \$2.19 each.
- 595. Same, 20 centimeters; selling price, \$1.91 each.
- 596. Same, 14 centimeters; selling price, \$1.14 each.
- 597. Aluminum milk boiler, 20 centimeters; selling price, \$1.94½ each.
- 598. Same, 16 centimeters; selling price, \$1.46 each.
- 599. Aluminum double boiler, 20 centimeters; selling price, \$3.08 each.
- 600. Same, 16 centimeters; selling price, \$2.43½ each.
- 601. Aluminum teapot, 3½ liters; selling price, \$2.84 each.
- 602. Same, 2½ liters; selling price, \$2.43 each.
- 603. Aluminum jug, 3 liters; selling price, \$1.62 each.
- 604. Same, 2 liters; selling price, \$1.17 each.
- 605. Aluminum pot with handles, 26 centimeters; selling price, \$2.03 each.
- 606. Same, 22 centimeters; selling price, \$1.62 each.
- 607. Aluminum frying pan, 28 centimeters; selling price, \$1.78 each.
- 608. Same, 24 centimeters; selling price, \$1.30 each.
- 609. Same, 20 centimeters; selling price, \$0.89 each.

610. Same, 16 centimeters; selling price, \$0.65 each.
611. Aluminum strainer, 18 centimeters; selling price, \$0.88 each.
612. Aluminum fish kettle, 41 centimeters; selling price, \$5.84 each.
613. Small aluminum pan, 18 centimeters; selling price, \$0.57 each.
614. Same, 16 centimeters; selling price, \$0.47 each.
615. Same, 12 centimeters; selling price, \$0.32 each.
616. Aluminum funnel, 12 centimeters; selling price, \$0.57 each.
617. Same, 8 centimeters; selling price, \$0.32 each.
618. Aluminum tumbler, 7 centimeters; selling price, \$0.21 each.
619. Aluminum jar, 7 centimeters; selling price, \$0.24 each.
620. Aluminum squeezer; selling price, \$0.11 each.
621. Aluminum beater, 12 centimeters; selling price, \$0.44 each.
622. Aluminum lemon spoon, 10 centimeters; selling price, \$0.41 each.
623. Aluminum fork; selling price, \$0.41 each.
624. Aluminum ladle hanger, 35 by 42 centimeters; selling price, \$2.03 each.
625. Strainer; selling price, \$0.21 each.
626. Same, selling price, \$0.11 each.
627. Grater; selling price, \$0.11 each.
628. Same; selling price, \$0.04 each.
629. Mold; selling price, \$0.11 each.
630. Same; selling price, \$0.08 each.
631. Same; selling price, \$0.097 each.
632. Strainer; selling price, \$0.32 each.
633. Bread toaster; selling price, \$0.50 each.
634. Trowel; selling price, \$0.097 each.
635. Custard bowl; selling price, \$0.78 each.
636. Same; selling price, \$0.68 each.
637. Same; selling price, \$0.47 each.
638. Mold; selling price, \$0.44 each.
639. Same; selling price, \$0.44 each.
640. Same; selling price, \$0.31 each.
641. Same; selling price, \$0.42 each.
642. Same; selling price, \$0.84 each.
643. Same; selling price, \$0.55 each.
644. Same; selling price, \$0.52 each.
645. Mold, with cover; selling price, \$1.07 each.
646. Same; selling price, \$0.88 each.
647. Same; selling price, \$0.75 each.
648. Same; selling price, \$0.47 each.
649. Watering pot; selling price, \$0.36 each.
650. Molasses dish; selling price, \$0.88 each.
651. Same; selling price, \$0.88 each.
652. Grater; selling price, \$0.28 each.
653. Same; selling price, \$0.31 each.
654. Strainer, selling price, \$0.65 each.
655. Custard dish; selling price, \$0.88 each.
656. Same; selling price, \$0.66 each.
657. Mold; selling price, \$0.73 each.
658. Ice-cream mold; selling price, \$0.21 each.
659. Funnel; selling price, \$0.24 each.
660. Same; selling price, \$0.19½ each.
661. Coffee pot, German; selling price, \$1.33 each.
662. Teapot, German; selling price, \$0.93 each.
663. Custard dish, German; selling price, \$0.78 each.
664. Pudding dish, German; selling price, \$0.35 each.
665. Baking dish, German; selling price, \$0.62 each.
666. Same; selling price, \$0.43 each.
667. Pot, French; selling price, \$0.50 each.
668. Sectional dinner pail, Chilean; selling price, \$0.89 each.
669. Egg plate, Chilean; selling price, \$0.15 each.
670. Stewpan, with cover; Chilean; selling price, \$0.23½ each.
671. Teapot, Chilean; selling price, \$0.41 each.
672. Baking dish, Chilean; selling price, \$0.26 each.
673. Same; selling price, \$0.19½ each.
674. Same; selling price, \$0.15 each.
675. Mold, Chilean; selling price, \$0.11 each.
676. Dustpan, Chilean; selling price, \$0.45 each.
677. Coffee pot, Chilean; selling price, \$0.47 each.

- 678. Can, Chilean; selling price, \$0.94 each.
- 679. Same; selling price, \$0.76 each.
- 680. Same; selling price, \$0.62 each.
- 681. Same; selling price, \$0.47 each.
- 682. Same; selling price, \$0.37 each.
- 683. Same; selling price, \$0.28 each.
- 684. Same; selling price, \$0.19½ each.
- 685. Lotto; selling price, \$0.73 each.
- 686. Pair of skates; selling price, \$6.31 each.
- 687. Dominoes; selling price, \$1.38 each.
- 688. Checkerboard; selling price, \$1.54 each.
- 689. Lottery; selling price, \$2.13 each.
- 690. Ball covering; selling price, \$1.59 each.
- 691. Bladder, selling price, \$0.57 each.
- 692. Tinned and varnished buckles:
 - Tinned buckles, without roller—Nine French lines, selling price per hundred, \$0.76; 10 lines, \$0.95; 11 lines, \$1.03; 13 lines, \$1.33; 14 lines, \$1.63; 16 lines, \$1.90; 18 lines, \$2.24.
 - Tinned buckles, with roller—Eight French lines, selling price per hundred, \$0.76; 9 lines, \$0.91; 10 lines, \$0.99; 11 lines, \$1.195; 12 lines, \$1.42; 14 lines, \$1.71; 16 lines, \$1.90; 18 lines, \$2.24.
 - Half rings—Twelve French lines, selling price per hundred, \$1.14; 16 lines, \$1.90; 18 lines, \$2.10; 20 lines, \$2.63; 22 lines, \$2.72; 24 lines, \$3.415.
 - Halter square, 14 by 15; selling price per hundred, \$1.90.
 - Polished half ring, 24; selling price per hundred, \$2.32.
 - Simple cinch buckle, varnished; selling price per hundred, \$4.95.
 - Double cinch buckle, varnished; selling price per hundred, \$2.24.
 - Screw for harness saddle; selling price per hundred, \$7.54.
 - Harness buckles—Six French lines, selling price per hundred, \$0.57; 7 lines, \$0.65; 8 lines, \$0.68; 9 lines, \$0.72; 10 lines, \$0.76; 11 lines, \$1.03; 12 lines, \$1.24.
 - Harness buckles, with roller—Ten French lines, selling price per hundred, \$0.57; 11 lines, \$0.615; 13 lines, \$1.71.
 - Harness buckles, without roller—Eleven French lines, selling price per hundred, \$1.03; 13 lines, \$1.33.
 - Trace square, 18; selling price per hundred, \$5.55.
 - Bridge; selling price, \$5.55.
 - Trace buckles, 18; selling price per hundred, \$5.70.
 - Blinder buckles; selling price per hundred, \$9.50.
 - Ear buckles; selling price per hundred, \$11.40.
- 693. Varnished and brass buckles:
 - Bridge keys, varnished, loose ring; selling price, \$0.46 per pair.
 - Bridge keys, varnished, loose ring; selling price, \$0.13 for single key.
 - Bridge keys, varnished, fixed ring; selling price, \$0.34 per pair.
 - Bridge keys, varnished, fixed ring; selling price, \$0.11 for single key.
 - Bridge buckles, with center piece; selling price, \$0.19 each.
 - Bridge buckles, without center piece; selling price, \$0.19 each.
 - Shaft holder; selling price, \$0.27 each.
 - Rings, 36; selling price, \$0.095 each.
 - Tinned ring, 36; selling price, \$0.095 each.
 - Brass harness buckles—Six French lines, selling price per hundred, \$0.30; 7 lines, \$0.39; 8 lines, \$0.395; 9 lines, \$0.42; 10 lines, \$0.46; 11 lines, \$0.53; 12 line, \$0.57; 14 lines, \$0.76.
 - Harpoon for harness saddle; selling price, \$0.30 each.
 - Harpoon for tailpiece, fixed ring; selling price, \$0.095 each.
 - Harpoon for tailpiece, loose ring; selling price, \$0.24 each.
 - Harpoon for tailpiece, with screw; selling price, \$0.24 each.
 - Simple cinch buckle; selling price, \$0.19 each.
 - Double cinch buckle; selling price, \$0.08 each.
 - Bridge key; selling price, \$0.87 each.
 - Simple key, with knot; selling price, \$0.30 each.
 - Simple key, without knot; selling price, \$0.26 each.
 - Ordinary hook for harness saddle; selling price, \$0.34 each.
 - Fancy hook for harness saddle; selling price, \$0.38 each.
 - Trace buckle, 18; selling price, \$0.38 each.
 - Ear buckle, 18; selling price, \$0.38 each.
 - Shaft holders; selling price, \$1.14 each.

BOLIVIA.

Two hinged hasps.
Stove and accessories.
Three oil cans.
Four brushes.
Two pairs stirrups.
Three horse bits.
Three pairs spurs.
Four mason's trowels.
Six escutcheons.
Three chisel handles.
Three awl handles.
Eleven door locks.
Six trunk locks.
Four drawer locks.
Desk lock.
Two compasses.
Three dog chains.
Four butcher knives.
Three planes.
Molding plane.

Joiner's rabbeting plane.
Seven padlocks.
Two door catches.
Spatula.
Iron hook for bedstead.
Set of shoemaker's tools.
Set of saddlemaker's tools.
Roll of wicker for chairs.
Two sets of steel marking letters.
Pipe wrench.
Ratchet drill.
Three blank keys.
Emery for wood.
Emery for iron.
One dozen awls.
Meter with spring.
Same, without spring.
Steel meter.
Bronze meter.
Weight for scale.



